universität wien

# MASTERARBEIT / MASTER'S THESIS

Titel der Masterarbeit / Title of the Master's Thesis

„What determines market reactions to CEO announcements?"

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien, 2017 / Vienna, 2017

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|---|---|
| Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet: | A 066 915 |
| Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet: | Masterstudium Betriebswirtschaft |
| Betreut von / Supervisor: | Univ.-Prof. Dipl.-Chem. Dr. Markus Georg Reitzig, MBR |

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## Acknowledgements

As this Master's Thesis constitutes both the peak and the end of my academic career for the time being, I would like to use the following lines to express my gratefulness to the many people, who supported me during these last years.

First and foremost, I would like to thank the entire Strategic Management Subject Area for their support. Special thanks go to Prof. Markus Reitzig, Steffen Keck and Christian Schumacher, who triggered my interest in the field of strategic management and provided advice whenever necessary.

Furthermore, my sincere thanks go to Anna Cholewa, Nikolaus König, Simon Schmidt, Yonnas Tesfamicael and many others, who always pushed me and endured numerous discussions on the topic.

Last but not least, I would like to thank my family for the encouraging and never-ending support they offered throughout the last years. I am deeply grateful.

Cheers to all of you!

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## List of abbreviations

| | |
|---|---|
| AMEX | American Stock Exchange |
| AR | Abnormal Return |
| CAPM | Capital Asset Pricing Model |
| CAR | Cumulative Abnormal Return |
| CEO | Chief Executive Officer |
| CoB | Chairman of the Board |
| COO | Chief Operating Officer |
| CV | Control Variable |
| DV | Dependent Variable |
| e.g. | exempli gratia |
| et al. | et alia |
| FE | Fixed Effects |
| FY | Financial Year |
| IV | Independent Variable |
| MM | Market Model |
| MAM | Market-adjusted Model |
| NYSE | New York Stock Exchange |
| OLS | Ordinary Least Square |
| RoA | Return on Assets |
| RoE | Return of Equity |
| RoS | Return on Sales |
| S&P | Standard & Poor's |
| VAR | Variance |
| VIF | Variance Inflation Factor |
| WRDS | Wharton Research Data Services |
| WSJ | Wall Street Journal |

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# I Introduction

'What determines market reactions to CEO announcements?'

This apparently simple question has been challenging researchers for decades. Despite enormous efforts to shed light on the topic of management succession and its influence on stock markets, there are, as of now, no consistent findings. Researchers have used a multitude of approaches consisting of various variables and event windows during the last 60 years, but were unable to provide one unified answer to the question. The complexity and variety of factors influencing the announcement of a new chief executive officer (CEO) as well as the sensibility and fast-moving nature of stock markets has been inhibiting scholars, to a large degree, to deduce conclusive and consistent results.

The research field of management succession experienced its boom during the 1980s and 1990s, however the subsequent fragmentation of the field lead to a stagnation regarding the overarching factors. Consequently, this thesis intends to revive the topic of management succession and propose an answer to the question by introducing CEO narcissism as a pivotal predictor of stock market reactions to CEO announcements.

However, this thesis does not claim to provide a unique answer but further sheds light on a still obscure research field by comparing the major findings obtained during the 1980s and 1990s to current data and by applying more advanced methods of data analysis. In doing so, the introduction of CEO narcissism as an influential factor and the usage of standardized and averaged variables may help to overcome and clarify the source of past inconsistencies and gain further insights. A certain set of personality traits, especially narcissism, has proven to be crucial for CEOs (Judge, LePine and Rich, 2006) and helpful to obtain the highest executive position (Rosenthal and Pittinsky, 2006). Furthermore, the CEO position is associated with an enormous impact on the external perception of the corporation and its future stock market performance (Dalton and Kesner, 1985). Therefore, narcissism as a key personality trait of the most influential executive might significantly impact the market reaction to CEO announcements. Based on this logical deduction, the established set of determinants trying to fill the research gap is extended by the personality trait of CEO narcissism.

The objective is to close the still existing research gap by introducing CEO narcissism as a primary variable in the context of management succession. The insertion of CEO narcissism as a key variable determining the market reactions to CEO announcements constitutes the major added value of this thesis.

Previous studies already identified CEO origin, defined as either insider or outsider, and pre-succession performance, measured by various accounting figures, to impact the stock market return on the announcement date of the CEO. However, these studies did not present consistent or comparable results due to differences in methodology and measurement. As Kesner and Sebora (1994) stated correctly, "[…] when it comes to executive succession, there is little that we know conclusively, much that we do not know because of mixed results, and even more that we have not yet studied." (Kesner and Sebora, 1994, p. 327). This conclusion still holds true today.

Therefore, the second objective of this work is to summarize what is known conclusively and analyze why mixed results occurred. A comprehensive literature review is conducted to provide an overview on the major findings in the field of management succession. Moreover, the results are compared according to the methodology, the variables and their measurements. Based on this effort, the potential obstacles towards a conclusive set of findings are presented.

The third contribution of this thesis consists of the endeavor to supply a more reliable approach to empirically test which factors determine stock market reactions to CEO announcements. In order to achieve this goal, the distinctive measures of certain variables used in previous studies are standardized and combined to an averaged measure including the effects of all sub-measures. This procedure is employed to alleviate the individual effect of a certain sub-measure, which might be one of the reasons for mixed findings, and replace it by an averaged measure. Eventually, the research gap this thesis addresses demands the determination of key variables shaping the cumulative abnormal return at the announcement of a new CEO. This is achieved by incorporating CEO narcissism as a pivotal personality trait in a set of already acknowledged factors and by testing the impact of each explanatory variable. The research design is aligned with previous studies to shed light on the cause of inconsistent findings, and enriched by sophisticated statistical analysis to provide further insights.

Although, the research gap, that this work addresses, combines research streams of strategic management and finance; the latter only contributes the methodology of analyzing stock market reactions. Based on event-study methodology, the cumulative abnormal returns of certain event windows are constructed and constitute the dependent variables. The deduction of actions according to the potential movements of the stock market price of a certain corporation is a highly strategic process and a crucial task of the management team. Therefore, the stock market price of a firm is an important strategic variable (Lubatkin and Shrieves, 1986) that conveys crucial information about the health of the organization to its stake- and shareholders. Furthermore, the stock market price is an elementary measure during mergers and acquisitions and, finally, represents a pivotal indicator of performance, profitability and future earnings. This relationship of stock market prices, its determinants, and its effects on the strategy of a corporation legitimates the integration of this thesis into the research field of strategic management.

# II Theory & Empirical Evidence

Chapter II aims at shedding light on the early beginnings of management succession research in the 1960s and at depicting the evolvement of the field during the following decades. Thereby, the origins of succession theories are outlined and the results of empirical analyses are compared and scrutinized. The evidence gained in this chapter lays the foundation for the upcoming hypothesis development in chapter III and the empirical analysis in chapter V. A thorough reflection on past findings is essential to understand the immense implications that management succession has on organizations as a whole (Kesner and Sebora, 1994) and the disruptive nature of the event (Grusky, 1960). However, the lack of conformity across studies regarding methodology diminishes the deduction and reliability of generally valid conclusions.

## II.1 The origins of management succession

The roots of management succession research go back to the early 1960s. During that time scholars first started to systematically conduct research on the various effects and implications of management successions on organizations (Grusky, 1961; Gordon and Becker, 1964). Until then, research on the topic was characterized by the absence of structure and scrutiny (Grusky, 1960).

Among others, it were Oskar Grusky and Richard Carlson, who pathed the way for management succession research by identifying and testing the significance of variables, such as successor origin (Carlson, 1961; Grusky, 1964), organizational size (Grusky, 1961; Gordon and Becker, 1964) and post-succession performance (Grusky, 1963; Gamson and Scotch, 1964). Those key variables of management succession were analyzed in different contexts by surveying various industries and disciplines.

While Grusky's study (1963) observed management succession in baseball teams, Carlson used a sample of 200 school superintendents to investigate the influence of successor origin. The first concluded that insider succession, namely current coaches or players who later became the manager of the team, results in augmented team performance, whereas outsider succession is associated with unchanged performance (Grusky, 1964). Carlson (1961) found that insiders, defined as superintendents who have been employed at the school, show a decrease in the willingness to alter the

organization, are payed less than outsiders and do not obtain the same status as their counterparts. Although, both studies addressed the topic of successor origin, the findings are not directly comparable since the methodology, including aspects such as sample selection, diverges dramatically.

Organizational size, as a second key variable of succession research in the early 1960s, was analyzed in connection to the frequency of successions. The objective was to determine whether the frequency of successions in corporations is linked to the size of the organization. In a first attempt to measure this influence, Grusky (1961) gathered data on the position and age of the manager for the smallest and largest corporations of the Fortune 500, a list of the 500 biggest firms according to total sales. Grusky (1961) concluded his study by positively relating the frequency of successions to the size of the organization. In other words, the larger the corporation is, the more often successions occur. Gordon and Becker (1964) reviewed Grusky's work and extended it by introducing a broader set of measurements for corporate size. While Grusky (1961) solely used net sales volume as the measure for size, Gordon and Becker (1964) slightly adjusted the measure to gross sales and added the number of total employees as a second measure. Their results indicated no relationship between size and frequency of succession (Gordon and Becker, 1964). Once again, the difference in the measurement of key variables is decisive for the existence of diverging results. Albeit, the application of different measurements of key variables appears to be important to assess the validity and robustness of a certain measure, it is noteworthy that even little changes in the measurement can have huge effects on the outcome.

A third route that succession theory took during the 1960s included the characteristics of the successor. First and foremost, the administrative style of the successor (Kotin and Sharaf, 1967) and the fit between the characteristics of the successor and the organizational structure (Guest, 1962) were discussed, predominantly in the context of post-succession performance. Whilst other streams of research within the field of management succession produced contradicting results (Kesner and Sebora, 1994), both Kotin and Sharaf (1967) and Guest (1962) concluded that specific characteristics of the successor play an important role in predicting the organization's performance after the succession event. This finding indicates that an evaluation of the stock market performance at the

announcement date should consider certain aspects of the successor's personality. As is shown later, CEO narcissism is such an influential personality trait.

The fourth path of succession research identified and discussed the general performance context of management succession. In doing so, three main theories emerged, each based on a different relationship between performance and succession.

## II.2 The 'three theories of management succession'

In line with the discussion on the effects of organizational size and successor origin on the succession event, research on the performance context produced partially contradicting results as well. Nonetheless, the following three theories were cornerstones for the research on management succession since they relate the succession event to the post-succession performance. This link is essential for investors because their evaluation of the firm depends on the firm's ability to perform well, thereby creating a return for the investor.

Whilst the three theories of management succession treat corporate performance quantified by accounting measures as the dependent variable, the emergence of stock market reactions as a dependent variable lead to a transformation that replaced the traditional measure by a new, more complex and volatile measure. Since then accounting measures were primarily used as an explanatory variable and post-succession performance was substituted by the stock price movement associated with the management succession. Hence, the following three theories mark the early beginnings of market reactions to CEO announcements and are essential to understand the relationship between the announcement event and the consequences attached to it.

### II.2.1 'Vicious Circle'

Based on Grusky's analysis of succession events among baseball team managers (1963), Gamson and Scotch (1964) conducted a study that challenged Grusky's assumption on causality and, thereby, the results of Grusky's work. From their understanding, Grusky was unable to provide clear evidence that frequently appearing successions deteriorate performance. However, Gamson and Scotch (1964) could not refute Grusky's (1963) theory of a 'vicious circle', which states that the disruptive nature of a

succession event itself causes a decline in performance (Gamson and Scotch, 1964). Instead, Gamson and Scotch (1964) developed their own theory called ‘scapegoating’.

### II.2.2 ‘Scapegoating’

Although, Gamson and Scotch (1964) were unable to support this theory, they favored the explanation that there is no direct connection between succession and post-succession performance. The theory became known as the ‘scapegoating’ theory because the dismissal of the manager was neither related to his or her own performance, nor the performance of the team or organization. Hence, the manager is not held accountable for the performance of the firm. The firing rather symbolized a signal of change and presented the manager as the scapegoat that needed to be sacrificed. An impact on the performance, though, is not quantifiable (Allen, Panian and Lotz, 1979).

### II.2.3 ‘Common-sense’

The last theory concedes that the manager has influence on the performance, which is why he can be held accountable for ongoing declines (Gamson and Scotch, 1964). Due to this accountability, the decisions of the manager are the reason for the deterioration in performance. The replacement of the manager by a candidate that is not prone to make the same mistakes again, therefore, consequently increases the performance (Gamson and Scotch, 1964). This logical aspect of the theory is the reason why it is referred to as the ‘common-sense’ theory. The accountability of the CEO represents the differentiator to the ‘scapegoating’ theory.

## II.3 Elaboration during the 1970s

During the 1970s the research domain of management succession started to experience a rapid growth phase that lasted for decades. The focus of the prospering field, however, mostly remained on the topics that have already been addressed during the previous decade. Nevertheless, contributions by, first and foremost, Helmich and Pfeffer challenged existing approaches and extended the scope of research.

A pivotal task was to further elaborate on the definitions of insiders and outsiders within the context of successor origin. Conventionally, the first describes an employee that has already been working for the organization, when being promoted, whereas the latter encompasses employees that were hired from outside of the organization (Carlson, 1961). Based on this distinction Carlson (1961) concludes that insiders are 'place-bound' and outsiders are 'career-bound'. The preferences of the successor, which are either aligned with the wellbeing of the firm or personal career opportunities respectively, separate insiders from outsiders. Helmich and Brown (1972), in a first attempt to challenge this traditional definition, distinguish insiders and outsiders according to their affiliation to the predecessor's managerial team. Inside successors are already a part of the predecessor's staff, whereas outsiders are not (Helmich and Brown, 1972). Furthermore, they found that inside successions are less disruptive and that successor origin depends on pre-succession performance (Helmich and Brown, 1972). From their point of view, it is possible that an employee that got promoted to the CEO position from within is considered an outsider.

A second stream of research classified successor origin according to her industry affiliation (Birnbaum, 1971; Pfeffer and Leblebici, 1973). Scholars acknowledge that the environment from which the successor originates, mainly measured by industry affiliation, influences the organizational processes (Birnbaum, 1971) and vice versa (Pfeffer and Leblebici, 1973). Inside succession describes the announcement of a successor who is familiar with the organizational environment, and is less disruptive to organizational processes (Birnbaum, 1971). Moreover, industry characteristics, such as competition, influence the type of succession (Pfeffer and Leblebici, 1973).

During the 1970s research on the relationship between successor characteristics and the organization experiencing the succession intensified. A study conducted by Helmich and Brown (1972) encompassed 208 chemical companies in the U.S. and reports that the characteristics sought in the successor, such as leadership style, are contingent on the pre-succession performance. In line with this finding, Pfeffer and Salancik (1977) investigated succession events in 57 U.S. hospitals and conclude that organizational characteristics, such as size, have an influence on the selection process. Although the samples of both studies show no similarities at all, the authors agree that the type of

successor is dependent on certain characteristics of the organization, strengthening the importance of this relationship.

## II.4 Extension, revision and stock market reactions to management changes

After scholars continued to define and classify key variables and concepts of management succession during the 1970s, the first papers to review the status quo were written in the 1980s and 1990s. Furthermore, the number of publications on the topic exploded during the 1980s and new research areas, such as market reactions to succession events, emerged. Nonetheless, research on management succession still lacked comparability among studies and mixed findings continued to impede the deduction of more general conclusions (Kesner and Sebora, 1994). Because this period produced many new approaches and topics regarding management succession, of which not all are directly related to the subject of this thesis, the focus is put on the research that coined the methodology and variables used in this thesis. Due to the ongoing importance of the successor origin and the performance context of the succession event, these two streams of research are further reviewed in the context of market reactions to CEO announcements.

The following review is clustered into two main categories. Firstly, papers conducting event studies and linear regressions to examine the market reactions to management succession are summarized. Secondly, a summary of the results in accordance to 'the three theories of succession' is presented. At this point it should be mentioned that many of the studies typically assessed the reactions of the stock market in contingency to an important variable of the succession event, such as successor origin and pre-succession performance. Hence, the following description of the most influential papers is not limited to studies that identify an overall succession effect, but includes findings that are based on contingencies as well.

### II.4.1 Stock market reactions to management changes

The fact that research conducted in the 1960s and 1970s produced mixed findings is partly based on differences in measuring performance as a dependent variable. Grusky (1963) used 'average team standing' as a criterion for effectives, which he considers to be the dependent variable. In contrast,

Helmich and Brown (1972) measure performance in terms of organizational profitability. In general, performance measures are affected by numerous factors, some influential in the short run, others in the long run, but all of them differ in the propensity to manipulations through the CEO. This complexity explains that results diverge as soon as the measurement changes. Owed to the differences in operationalizing performance measures, scholars tried to overcome the issue by using abnormal stock returns, a more objective and unbiased method that is rooted in finance, as a dependent variable (Kesner and Sebora, 1994). These abnormal stock returns are the foundation of the event study methodology, which was developed by Fama et at. (1969) and is explained in detail in the chapters IV.1.2 and IV.2.

One of the first researchers to apply event study methodology and explore the effect of management succession on stock market prices was Reinganum (1985). His study encompasses 511 executive successions of all the firms listed on the New York Stock Exchange (NYSE) and American Stock Exchange (AMEX) that were reported in the Wall Street Journal (WSJ) in the years 1978 and 1979). In his work, he controls for firm size, origin of the successor, and the disposition of the departing executive. The results of his work indicate that there is no general impact of management succession on the stock market price, although small firms that experience outside successions show a significant positive movement in terms of stock market prices (Reinganum, 1985).

The same year, Worrell *et al.* (1986) took a different perspective on succession by analyzing the market reactions to the deaths of corporate presidents, chairmen and CEOs, which were reported in the WSJ between 1967 and 1981. The analysis of abnormal returns on the date of death is conducted by the application of a t-test and shows that investors, in general, do not react to the event on a single day. However, for a subgroup consisting of only CEOs/Chairmen the stock market shows a negative reaction to the death of the executive.

Beatty and Zajac (1987) in their study on the relationship of CEO succession and firm performance applied both a cross-sectional and longitudinal research design to test whether the announcement of 209 CEOs in large corporations, published in the WSJ, provokes a stock market reaction. In general, t-tests of the prediction errors on the announcement dates show that the abnormal return is indifferent from zero (Beatty and Zajac, 1987). This finding is in line with the results of

Reinganum (1985). However, when they separately looked at the market reaction for insiders and outsiders during the three days immediately followed by the announcement date, a drop in the firm's market value is observable for both types of successors. Although the results of Beatty and Zajac (1987) are not directly comparable to the work of Reinganum, because they do not control for firm size, the deviating findings regarding outside succession indicate a sensitivity to the methodology.

In contrast to Beatty and Zajac (1987) and Reinganum (1986), Furtado and Rozeff (1987) find positive stock market reactions to the announcements of management changes, while controlling for firm size, measured by the firm's market value of equity, and the origin of the successor. Moreover, their results show that promotions from within are more common than external appointments and that internal promotion are viewed positive by the market, whereas outside hires yield negative returns. This contradicts the findings of both Reinganum (1986), who reports positive returns for outsider appointments, and Beatty and Zajac (1987), who find negative market reactions for both origins. The greater disruptive impact of an outside announcement on the organization (Allen, Panian and Lotz, 1979) might be one reason why stock markets reacted negatively.

Warner, Watts and Wruck (1988) conducted a study to observe the stock market reactions, measured by abnormal returns, to management changes reported in the WSJ in the year 1962. Their model includes data on the position involved (CEO, president or chairman) and origin of the successor for 351 reported management changes. The results of their analysis indicate that management changes do not trigger a significant market response, which is consistent with the findings of other scholars (Reinganum, 1985; Beatty and Zajac, 1987). Nevertheless, the examination of the stock market return for each type of successor origin reveals a significant positive response for outsiders but not for insiders (Warner, Watts and Wruck, 1988), which is endorsed by findings of Reinganum (1986). One reason that stock markets react positive to outside succession may be that external appointments are more likely to fuel growth (Helmich and Brown, 1972)

Unlike the results of the studies already mentioned, Bonnier and Bruner (1989) report a significant and positive effects to the announcement of management changes in distressed firms. The sample encompassed management changes in firms listed on the NYSE or AMEX between 1969 and 1983. A cross-sectional analysis of firm size, measured by sales, the title of the manager, either CEO

or non CEO, and origin, coded as insider or outsider, on the abnormal return does not depict significance for any of the variables (Bonnier and Bruner, 1989). Although, the study design of Bonnier and Bruner (1989) is comparable to other studies of that time, their sample, consisting only of distressed firms, limits the comparability of the results because management changes in poorly performing firms are expected to generate positive market reaction (Gamson and Scotch, 1964).

Friedman and Singh (1989) also report positive stockholder reactions to changes in the CEO position when pre-succession performance was bad and either the board or the CEO initiated the succession process. As already mentioned, their study includes the force initiating the management change, the performance context of the succession, measured by the return of equity, as well as successor origin, firm size, measured by the number of employees, and the disposition of the predecessor. The data collection consists of a survey mailed to all firms listed in the Fortune 500, of which 235 replied. Compared to other studies (Reinganum, 1985; Beatty and Zajac, 1987; Furtado and Rozeff, 1987; Warner, Watts and Wruck, 1988), they find that the origin of the successor is not a valid predictor for shareholder reactions (Friedman and Singh, 1989).

In the year 1989 Lubatkin *et al.* conducted a study that supported the notion that outsider announcements create positive stock market reactions. Moreover, they conclude that the stock market is not indifferent to the announcement of changes in management since negative abnormal returns are reported for a period of 50 days before and after the announcement. Therefore, their analysis fosters the importance of successor origin in relation to stock market reactions because outside appointments yielded significant positive reactions. However, returns on the announcement date are not distinguishable from zero (Lubatkin *et al.*, 1989). The study design used by Lubatkin *et al*. (1989) consists of a multiple regression of successor origin, the performance context around the announcement date, firm size and certain interaction terms on the stock market return. The sample includes 477 succession events that took place during the years 1971 to 1985, and encompasses all firms listed in the Forbes annual June issue on executive compensation. The study Lubatkin et al. (1989) indicates that there might be a relationship between the importance of each independent variable and a certain event window. This notion supports the argument that a two-day window might

be too narrow to observe the announcement effects (Reinganum, 1985; Lubatkin and Shrieves, 1986) and that a set of different event windows is necessary to capture the impact of distinctive factors.

By the end of the 1980s more than a dozen studies on the subject of CEO succession and the corresponding market reactions have been published (Kesner and Sebora, 1994). Nevertheless, the interest in the field continued to grow because certain aspects of the relationship remained unknown.

In 1990, Davidson, Worrell and Cheng (1990) examined 367 executive transitions of the Fortune 500 companies listed in 1986 and inferred that the stock market reacts positively to top management changes. This sharply contradicts findings of other scholars (Reinganum, 1985; Beatty and Zajac, 1987; Warner, Watts and Wruck, 1988). A cross-sectional regression including successor age and origin points out that investors react positively to the announcement of insiders and that the appointment of younger executive yields higher stock market returns (Davidson, Worrell and Cheng, 1990). Additionally, they show that pre-succession performance, firm size and successor education do not influence the market reactions at a significant level, which partially disagrees with findings of Reinganum (1985).

While most of the research conducted in the 1980s and early 1990s tried to unravel the general relationship between management succession, successor origin, pre-succession performance and stock market reactions, the following decades of research have been dedicated to more fine-grained and complex linkages (Giambatista, Rowe and Riaz, 2005). This lead to an increasing fragmentation of the field and overlaps with sociological, psychological and financial topics. CEO narcissism represents such an overlap between classical management literature and psychological concepts.

Nevertheless, some researchers continued to examine the traditional relationship between management succession and stock market reactions by introducing broader and more sophisticated definitions of successor origin and CEO characteristics. The following paragraphs only highlight the most relevant findings related to this thesis.

Ang, Lauterbach and Vu (2003) observe 268 CEO appointments between 1991 and 1995, and conclude that the abnormal stock return on the announcement date shows a positive evaluation of a better qualified CEO, which, furthermore, is accompanied by a performance enhancement right after

the announcement. CEO qualification is measured by an ex-ante pay premium (Ang, Lauterbach and Vu, 2003). This implies that the market values certain characteristics of a CEO and reacts respectively.

In line with findings by Davidson, Worrell and Cheng (1990) and Warner, Watts and Wruck, (1988), a study by Denis and Denis (1995), consisting of 908 executive successions between 1985 and 1988, of which roughly 20 percent were top executives, highlights the insignificant effect of management changes, in general. However, they found that the announcement of a management change involving top executives yields much larger and significantly more positive abnormal returns than those comprising of management changes at lower levels. These higher returns of top executive announcements are an indicator for the potential power and influence on the corporation of the CEO.

Other scholars, such as Shen and Cannella (2002, 2003) concentrated on defining the variable successor origin more precisely and extending its traditional definition. They identified relay succession as a potential solution to further explain the stock market reactions to different types of successors. In this context, a relay succession refers to a process in which the potential successor obtains the position of president or COO prior to his promotion to the CEO position. If this is the case the successor is also called heir-apparent. Their findings show that investors react negatively to the exit of an heir-apparent and positively to the promotion of the heir-apparent as well as to the hiring of an outsider. Positive stock market reactions to outsider succession are also found by Borokhovich, Parrino and Trapani (1996) and Huson, Malatesta and Parrino (2004).

Worrell, Nemec and Davidson (1997) took a closer look at the various positions a successor could receive in the course of the succession event. Therefore, they collected data on the positions of CEO, president and Chairman of the Board, the executive's origin, firm size and the composition of the board as well as pre-succession performance. The sample comprises the 1000 largest firms the in U.S. in the year 1990. The results of a cross-sectional regression depict that the more titles the successor obtains, the more negative the stock market reacts to the announcement (Worrell, Nemec and Davidson, 1997). Moreover, the market responds positively to the announcement of an outsider, who holds more than one position (Worrell, Nemec and Davidson, 1997). Based on this finding, a variable consisting of whether an incoming CEO also receives the position of Chairman of the Board is included. The accumulation of titles might indicate the power a CEO has within the company.

While most of the studies conducted during the end of the 20th century focused on the effects of successor origin, Lee and James (2007) took a different perspective and analyzed the effects of gender on the stock market reactions. Their research on 200 top executive successions between 1990 and 2000 states that the announcement of a female CEO evokes a significantly more negative stock market reaction than the announcement of a male CEO. Hence, gender represents another potential determinant of stock market reactions to CEO announcements.

Aside from the studies mentioned above, many more were published on the subject of management succession during the 1990s and the early 2000s. However, most of them addressed a fine-grained issue that barley contributes to the context of succession events and the corresponding market reactions. Therefore, the studies discussed in this subchapter build the theoretical foundation of this thesis.

### II.4.2 Summary and the connection to the 'three theories of management succession'

First and foremost, the multitude of studies and findings within the field of management succession after the 1970s needs to be emphasized. Although a large percentage of researchers used abnormal stock returns as a measure to capture the effect of management successions on the stock market, the differences in operationalizing certain key variables can be identified as the main factor impeding the conformity of findings. A closer look at the operationalization of the variables used in this work is provided in the chapter IV.1.

Event study methodology enabled researchers to better analyze the effects of management succession due to an increase in standardization of the methodology and the dependent variable. Nonetheless, these insights also revitalized the discussion about the 'three theories of succession' since neither theory could finally be precluded nor confirmed due to the persistence of mixed findings.

Nonetheless, the assumption that management succession triggers some kind of 'vicious circle' appears to be highly questionable, as significant and negative general effects on the announcement date were only observed under specific conditions. Beatty and Zajac (1987) ascertain a deterioration of stock returns during the two days directly following the announcement, but miss to test whether the cumulative abnormal return of the period around and including the announcement

date is different from zero, as well. Lubatkin *et al.* (1989) employ a 100-day event window to observe a negative market reaction, which inhibits certain risks. The implications of such an event window are discussed in chapter IV.1.1.1.

The 'scapegoating' theory, in contrast, receives plenty of support (Reinganum, 1985; Worrell *et al.*, 1986; Beatty and Zajac, 1987; Warner, Watts and Wruck, 1988; Boeker, 1992; Denis and Denis, 1995), although the time horizons during which the succession effect is measured differs across the studies. While Warner, Watts and Wruck (1988) cumulate the returns of the day preceding the announcement and the return on the announcement date, Beatty and Zajac (1987) just look at the announcement date. Therefore, a conclusive prediction of the effects of a succession event on the announcement day cannot be inferred without accounting for this bias. An in-depth discussion on the event window is provided in the eponymous chapter IV.1.2.3.

Positive stock market reactions are reported by Bonnier and Brunner (1989) and Davidson, Worrell and Cheng (1990). Their research fosters the notion that succession in general leads to an increase in stock market returns, also described as the 'common-sense' theory. Because both studies observed this effect for the same event window the validity of the 'common sense' theory is bolstered. A confirmation of the theory based on two studies, however, is not possible.

In conclusion, the current state of research in the field does not provide the one simple answer on the question 'what determines markets reactions to CEO announcements' due to the fragmentation of theory and the inconclusiveness of findings. Additionally, neither theory is rejected with certainty. Nevertheless, almost five decades of research produced valuable insights on the effect of succession events and the environment in which it takes place.

## II.5 Uniqueness of CEO succession

The fragmentation of the management succession field lead to a more detailed observation of factors influencing and influenced by the succession event. However, the nature and the impact of the succession event differs with regard to the management position involved (Denis and Denis, 1995). The fact that the investor's response to management succession depends on the position re-staffed suggests that certain executive levels have more influence on the company's prosperity and

profitability than others. Leaving aside the fact that stock market reactions include a multitude of factors encompassing characteristics of the executive, such as his or her propensity to alter dividends or stock repurchase strategies, the willingness to engage in M&A activities and the reputation of the successor, the hierarchical position the successor shapes the stock market's response.

While all the reviewed studies examined the effects of stock market reactions to top management succession, not all define the term top management in the same manner. Bonnier and Brunner (1988), Davidson *et al.* (1990), Warner *et al.* (1988) and Denis and Denis (1996) investigate CEOs, chairmen and presidents. Worrell, Nemec and Davidson (1997) study CEOs and presidents. Lee and James include CEOs, CFOs, COOs, Presidents and Senior Vice Presidents. Reinganum only focuses on chairmen and presidents. Finally, Beatty and Zajac (1987), Lubatkin *et al.* (1989), Friedman and Singh (1989), Ang, Lauterbach and Vu (2003) and Huson, Malatesta and Parrino (2004) concentrate exclusively on CEO succession. Once again, the lack of conformity among the studies inhibits the comparability of their results

For this thesis, the CEO position is of particular interest since actions taken or proposed by the highest ranked executive significantly shape the outside perception of the company and, hence, the future performance of the company's stock price (Dalton and Kesner, 1985). The CEO's high 'internal and external visibility' (Beatty and Zajac, 1987), as well as his or her responsibility and accountability for actions fostering, maintaining or altering the organization's strategy (Dalton and Kesner, 1985), are just a few reasons for the uniqueness of the position.

The pervasive impact of CEOs on their companies and the symbolism associated with the succession event separates CEO turnovers from successions at lower hierarchical levels (Kesner and Sebora, 1994). Moreover, CEO successions not only affect the organization involved but the company's political and economic environment (Kesner and Sebora, 1994). To internal stakeholders CEO successions may constitute the most disruptive sort of management transition (Kesner and Sebora, 1994). To external stakeholders a change in the CEO position is linked to potential future changes within the organization (Beatty and Zajac, 1987) since the CEO stands as a symbol for the entire organization and its chance to prosper or decay (Kesner and Sebora, 1994). Organizational success or failure is often linked to the allocation of resources, which is why the re-staffing of the

CEO position can help to realign resources to better respond to changes in demand (Friedman and Singh, 1989). Due to that, the CEO is considered to be the key strategist and decision-maker as well as the executive most likely to make a difference (Beatty and Zajac, 1987). Therefore, this thesis exclusively focuses on CEO transitions and the associated determinants of stock market reactions.

The role, symbolism and idiosyncratic job of a CEO (Kesner and Sebora, 1994) is the reason why personal characteristics of the CEO, the strategy and the performance of the organization are interwoven (Hambrick and Mason, 1984). Hence, investigating such personal characteristics is necessary to understand the market reactions to the announcement of a new CEO. The focus of this work thereby lies on a very specific characteristic: CEO narcissism.

## II.6 CEO narcissism

### II.6.1 The concept of narcissism

The concept of narcissism is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as "[…] a pattern of grandiosity, need for admiration, and lack of empathy." (American Psychiatric Association, 2013, p.645), and has recently experienced a lot of attention, both in the field of management and psychological research.

Although the DSM-5 classifies narcissism as a clinical disorder, it is assumed that a milder manifestation of the disorder constitutes a personality trait (Emmons, 1987). Traditionally, narcissism was classified as a clinical pathology, but nowadays it also describes a psychometric dimension on which all individuals can be ranked (Campbell, Goodie and Foster, 2004). A less extreme form of narcissism for example encompasses beneficial qualities such as charisma and self-esteem, which support narcissists in obtaining a CEO position (Rosenthal and Pittinsky, 2006). Additionally, narcissistic tendencies reflect strong self-admiration (Penney and Spector, 2002), and the desire and willingness to sustain and increase this self-perception (Morf and Rhodewalt, 2001), resulting in a strong sense of transcendence (Emmons, 1987).

Moreover, researcher acknowledge that the personality trait narcissism is crucial for CEOs (Judge, LePine and Rich, 2006; Chatterjee and Hambrick, 2007; Resick *et al.*, 2009; Gerstner *et al.*, 2013), especially in highly dynamic industries (Maccoby, 2003). Because of this perception and the

notion that the assessment of the new leader as well as the reaction to his or her announcement is affected by the fit between his or her characteristics and the requirements of the job (Lubatkin *et al.*, 1989), CEO narcissism appears to be a key construct for analyzing the stock market returns to CEO announcements.

Despite its benefits, the concept of narcissism entails certain adverse aspects that lead to a shift in perception. While narcissists are initially viewed highly positive, the image of a narcissist becomes more negative over time (Back, Schmukle and Egloff, 2010). A highly competitive, hostile and selfish behavior is just one reason for this change in perception (Back, Schmukle and Egloff, 2010). The combination of a highly inflated sense of superiority and self-admiration lets a narcissist favor bold and aggressive actions (Chatterjee and Hambrick, 2007; Gerstner *et al.*, 2013) that potentially satisfy the urge of sensation-seeking (Emmons, 1987). Thus, CEO narcissism plays a considerable role if organizations face periods of radical change (Gerstner *et al.*, 2013) or long lasting weak performance. The possibility to measure and scale narcissism allows the attribution of distinctive levels to different individuals (Campbell, Goodie and Foster, 2004), and reveals diverging tendencies of narcissism across CEOs (Chatterjee and Hambrick, 2007). The procedure of measuring and scaling CEO narcissism is explained in chapter IV.1.3.3. The importance of narcissistic inclinations for CEOs and its implication on the executive's behavior shows that CEO narcissism affects the decision making process of the CEO directly and, hence, the organization's strategy, structure, staffing and stakeholders (Chatterjee and Hambrick, 2007). Therefore, CEO narcissism arguably impacts the market reactions to CEO announcements.

## II.6.2 The measurement of narcissism

### *II.6.2.1 Direct measures*

In 1979, Raskin and Hall developed the 'Narcissistic Personality Inventory' (NPI) to further support the transformation of narcissism towards a personality dimension. Until now, the NPI remains the dominant and essential instrument for measuring narcissism (Chatterjee and Hambrick, 2007). The inventory is based on an older version of the Diagnostic and Statistical Manual of Mental Disorders' criteria for narcissistic personality disorders and consists of a questionnaire (Emmons, 1987). It is

assumed that only extreme forms of behaviors depict a clinical disorder, while attenuated manifestations of these behaviors constitute a personality trait (Emmons, 1987). The complexity and obtrusiveness of the inventory, though, inhibits its application in the context of this thesis. Hence, unobtrusive and more indirect measures of narcissism are needed.

#### *II.6.2.2 Indirect measures*

In an attempt to further specify and elaborate the NPI, Emmons (1987) identified Exploitativeness/Entitlement, Leadership/Authority, Superiority/Arrogance and Self-absorption/Self-admiration as the four main facets of narcissism, which cohere and together form a personality trait. The five indicators of narcissism in CEOs developed by Chatterjee and Hambrick (2007) are based on the work of Emmons (1987) and connected to at least one facet of narcissism. The unobtrusiveness of the measures facilitates the data collection in comparison to the NPI. In order to guarantee that the indicators reflected the narcissistic tendencies of the CEO, the executive had to have control over the indicator (Chatterjee and Hambrick, 2007). As a result, they presented the following measures of narcissism.

- Prominence of the CEO's photograph
- CEO prominence in company press releases
- CEO's use of first-person singular pronouns
- Measure of relative pay
- Narcissism index

Although the measurement of these variables most certainly includes more than one facet, it can be assumed that a distinctive variable may address a distinctive facet more intensively. The prominence of the CEO´s photograph, for example, may illustrate the CEO´s self-absorption and self-admiration, whereas the second measure might quantify the CEO´s endeavor to express leadership claim and authority. The fourth measure probably best qualifies to show the CEO´s superiority and entitlement. The third measure is not incorporated because of missing data. The last measure represents an index of the four preceding measures. Its calculation is show IV.1.3.3.4.

Most of the information necessary to construct these measures is available either on the company's website, ExecuComp (via WRDS) or Compustat (via WRDS). The unobtrusiveness of the measures and the accessibility of data were decisive in the process of selecting the most adequate measure of narcissism for this thesis. The procedure of collecting and evaluating the data is explained in detail in section IV.1.3.3. For the moment, it is sufficient to understand that direct or obtrusive measures involve the participation of the executive in question, whereas indirect or unobtrusive measures only refer to information that is provided by the company and not through questioning the CEO directly.

# III Hypotheses development

As the purpose of this thesis is to explore the determinants of market reactions to CEO announcements, this section tries to hypothesize in what way certain characteristics of the CEO and the company shape market reactions. In conclusion from the literature review conducted previously, it should be stated that there exists no clear set of determinants, and even if there was one, the influence of each determinant could barely be predicted. This obstacle rests on the mixed findings of previous research as well as the application of, to some extent, conflicting methodologies. Hence, a highly explorative approach is chosen, in which the direction of the effects as well as the presence of an effect is hypothesized. This thesis primarily is devoted to determining whether a certain factor influences stock market reactions to CEO announcements, since predicting the direction of the influence, based on past studies, is barely possible. Nonetheless, the direction of the influence is of immense strategic value for many stakeholders, which is why an in-depth analysis is run to obtain the most valid result.

## III.1 Overall impact of the succession event

Based on the very nature of this thesis, the first hypothesis addresses whether the stock market responds to the announcement of a new CEO. Previous studies showed that this is not necessarily the case (Reinganum, 1985; Worrell *et al.*, 1986; Beatty and Zajac, 1987; Warner, Watts and Wruck, 1988; Boeker, 1992; Denis and Denis, 1995). However, the logical argumentation of the 'common-

sense' theory appears to be the most seductive, especially if pre-succession performance is bad. Therefore, the fist hypothesis states:

*Hypothesis 1: The stock market responds to CEO announcements.*

The tremendous impact of the highest executive on the corporation (Kesner and Sebora, 1994) and the accountability of the predecessor for a deterioration of performance (Dalton and Kesner, 1985) supports the notion that the stock market responds to the announcement of a CEO. Hypothesis 1 is deliberately separated from the other hypotheses as it constitutes a preliminary step and is not directly linked to the overall question of this thesis.

## III.2 Hypotheses based on independent variables

The multitude of studies analyzing different determinants of stock market reactions to CEO announcements and the inconclusiveness of their findings lead to the decision to only include explanatory variables that have already proven their impact. In doing so, a funneled approach is chosen that includes a distinctive set of company and CEO related variables as control variables, and focuses solely on the most crucial independent variables. As a result of the thorough literature review, CEO origin and company pre-succession performance emerged as alleged determinants. In addition, the research gap this thesis tries to cover proposes the inclusion of CEO narcissism as an independent variable.

### III.2.1 CEO narcissism

Narcissism as a key personality trait of CEOs (Judge, LePine and Rich, 2006; Chatterjee and Hambrick, 2007; Resick *et al.*, 2009; Gerstner *et al.*, 2013) influences their judgment and decision-making (Chatterjee and Hambrick, 2007) and, hence the corporation as a whole and its stock market valuation. Since narcissists are initially perceived as highly positive (Back, Schmukle and Egloff, 2010) and narcissism constitutes an essential personality trait of CEOs (Judge, LePine and Rich, 2006) hypothesis two states:

*Hypothesis 2: CEO narcissism positively influences the stock market reactions to CEO announcements.*

Hypothesis 2 may be most reliable in the case of weak pre-succession performance since a return to profitability and an increase in performance typically is associated with severe changes. Narcissists possess the willingness to conduct these radical upheavals (Gerstner *et al.*, 2013).

### III.2.2 Successor origin

The importance of successor origin has already been discussed and ascertained during the early beginnings of the research topic (Carlson, 1961; Grusky, 1964) and continued to shape the field for the following decades, therefore, it is assumed that CEO origin plays an essential role. The direction of the influence is assumed in the following way:

*Hypothesis 3: The announcement of an insider yields positive stock market reactions.*

The assumed influence of an insider succession rests on the coding of the variable and on the findings of Shen and Cannella (2003) and Davidson, Worrell and Cheng (1990), who reported a positive stock market reaction to insider succession. A bad pre-succession performance, however, might offset this positive impact since outside succession is more disruptive (Helmich and Brown, 1972). Hence the effect of successor origin may be contingent on pre-succession performance.

### III.2.3 Pre-succession performance

The second major variable shaping management succession research during the last decades is pre-succession performance. Since findings regarding this variable, again, were mixed, the impact of pre-succession performance is scrutinized. The direction of the influence of pre-succession performance is assumed to be negative since a CEO transition is a disruptive event (Gamson and Scotch, 1964), especially if pre-succession performance is good.

*Hypothesis 4: The company's pre-succession performance affects the stock market's evaluation of the CEO announcement in a negative manner.*

This means that a firm's better pre-succession performance leads to a decrease in the stock market's return on the announcement date because it is attributed to a well performing CEO. Due to contingencies observed and statistically proven by many researchers, regressions including interaction terms are presented to test the hypotheses, too.

Although, the presentation of the hypotheses listed above indicates that successor origin, pre-succession performance and CEO narcissism are treated as equally important independent variables, only the latter contributes additional value to the research field since its influence has not been tested yet. Hence, the principal goal is to understand the influence of narcissism on stock market reactions.

# IV Data & Methodology

Based on the findings, implications and limitations of a thorough literature review, the research design aims to further unravel the effects of CEO succession on the stock market. Therefore, two distinctive analytical methods are applied: basic Ordinary Least Square (OLS) and Fixed Effects (FE) regression. A comparison of the two methodologies sheds light on the impact of time invariant firm effects. The key characteristics and assumptions of each method are presented and discussed in this chapter, which functions as an introduction to the empirical analysis. Moreover, the variables used during the empirical analysis as well as their measurements and the procedure of data collection are presented.

## IV.1 Variable Description

### IV.1.1 Announcement dates

The bedrock of the analysis employed to answer the question of 'what determines market reactions to CEO announcements?' are the announcement dates of the CEO transitions of the S&P 500 between January 2006 and August 2016. The S&P 500, which is an index that comprises the 500 largest corporations in the U.S., is chosen as the foundation of the sample due to the accessibility of the data through databases such as Wharton Research Data Services (WRDS), Compustat (via WRDS), ExecuComp (via WRDS) or FACTIVA®. In order to clarify the influence of certain factors on the stock market return of a certain corporation at the CEO announcement, the date itself has to be

ascertained. Therefore, the company's homepage was checked for the current CEO. Since the reference date was in August 2016, there could have been changes regarding the CEO position until this thesis was finished.

After the current CEO was determined, either the description of the CEO's profile, which usually is directly provided by the corporation, or Bloomberg's executive profiles is used to narrow down the announcement date of the current CEO.

As a next step, FACTIVA®, which is a database for global business news, is used to search for the first announcement of the current CEO. Rumors of an upcoming CEO succession are not considered since this kind of information is vague and not reliable. The name of the CEO is employed as the main identifier, while filters for the corporation, the subject 'management move' and the region U.S. are applied. No filters for the category 'date' and 'sources' are used. Once the announcement date of the current CEO has been ascertained, the press releases are searched for information on his or her predecessor. If no information is provided, other press releases around the announcement data are checked. Variations of the CEO's name, such as commonly known nicknames, abbreviations as well as middle names and academic titles, are checked to ensure that the first official press announcement is identified. While scanning for the first announcement of the corporation's CEO, it is also checked that there are no 'confounding events' for a period of 20 days prior to and 2 days after the announcement. This procedure is repeated until every CEO announcement between 2006 and 2016 for every corporation part of the S&P 500 as of August 2016 is determined.

The total sample comprises 752 CEO announcements between January 2006 and August 2016. However, due to 'confounding events' such as mergers (Lubatkin *et al.*, 1989) close to the announcement dates and, in some cases, the impossibility to define the first official announcement several CEO successions are condemned. To clear the sample from 'confounding events' all CEO announcements that are associated with a merger, acquisition or spin-off announcement within the given time horizon were excluded. After controlling for 'confounding events' the sample shrunk to 437 observations.

Nevertheless, some information regarding the CEO succession might have reached the investor some time before the official announcement has been made. Due to the fact that an CEO successions are

usually accompanied with a lot of 'noise' (Graffin, Carpenter and Boivie, 2011) and that newspapers occasionally do not respond as soon as possible to the announcement of a CEO succession (Reinganum, 1985), the determination of the exact announcement date is difficult in some cases. These circumstances, eventually, have a severe impact on the event study methodology employed in this thesis since the power of the method rests on ability to detect abnormal stock price performance in comparison to a certain benchmark on a certain date (Brown and Warner, 1980). Hence, the assignment of a false announcement date to a CEO succession would tremendously reduce the power of the method (Reinganum, 1985).

Based on the sample size of this thesis with 437 announcement dates and a period of almost 11 year covered by the analysis, the frequency of a CEO succession within a corporation of the S&P 500 is roughly 7 years. In comparison to other studies on the topic on succession frequency, the tenure of a CEO in this sample appears to be realistic since Vancil (1987) reported similar numbers. Therefore, CEO successions are a relatively rare event, explaining why many companies only experienced one succession or no succession at all. Nonetheless, in a few cases the same CEOs took over office at various firms. Moreover, the tenure of a CEO is similar to the tenure of a middle manager, who works for a corporation 6 years on average (Eitzen and Yetman, 1972). The figures reported in studies on CEO tenure were mostly gathered in the 70s and 80s. Hence, their comparability to the present numbers is questionable due to the fact that pace in business in general and its environment increased during the last decades due to technological achievements and their consequences.

If a corporation reported two announcements in one year, the early announcement was dropped since otherwise the application of panel data is hardly feasible. This issue arises as two announcements per firm in the same year no longer guarantee a unique combination of a firm identifier (PERMNO) and a time identifier (FY).

#### *IV.1.1.1 Confounding events*

The previous chapter on announcement dates already briefly discussed the importance of controlling for 'confounding events', which are defined as the release of other important information that may provoke a stock price reaction if published independently (McWilliams and Siegel, 1997). Examples

are the declaration of dividend changes, M&A activity or the announcement of another executive (McWilliams and Siegel, 1997). Since controlling for this issue is crucial for the validity of the upcoming statistical analysis a closer look on the procedure is provided. As outlined by Graffin, Carpenter and Boivie (2011) corporations deliberately use impression management in terms of confounding events to influence the stock market reactions on and around the announcement date of a new CEO. The intention of this 'strategic noise' is to distract shareholders and investors from the announcement itself because their reaction can barely be predicted (Graffin, Carpenter and Boivie, 2011).

In order to control for 'strategic noise' a time window of 20 days preceding the announcement of a new CEO and 2 days following the announcement was defined. If there were any press releases from the company listed in the FACTIVA® database that qualified as a confounding event the announcement was marked as biased and excluded from further analysis. Controlling for roughly three weeks in advance and the following two days of the succession is reasonable since other researchers chose comparable time windows (Furtado and Rozeff, 1987). Additionally, the stock market typically react rather quickly to the appearance of new information (Fama *et al.*, 1969). The latter is required to assume efficient markets, a concept that states that stock prices incorporate all 'publicly available information' (Reinganum, 1985).

### IV.1.2 Dependent variable

The cumulative abnormal return (CAR) constitutes the dependent variable for the analysis conducted in this thesis. Its measurement and calculation is described in this subchapter. The procedure of calculating this specific return originates from finance literature of the 1960s and underlies the Capital Assets Pricing Modell (CAPM) and its assumption of efficient markets (Fama and French, 2004). The CAPM, developed by Sharpe (1964) among others, "[...] marks the birth of asset pricing theory [...]" (Fama and French, 2004, p. 25). Its fundamental insights on the computation of security prices under conditions of risk and uncertainty (Sharpe, 1964) built the basis for the calculation of the abnormal returns (AR). In general, abnormal returns are defined as the difference between the normal or actual

return ($R_{i,t}$) of security *i* on day *t* and the expected return ($\hat{R}_{x,t}$) for security *i* on day *t* (Reinganum, 1985):

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t} \qquad (1).$$

The expected return functions as a benchmark, which the observed return is compared to in order to compute the abnormal return (Strong, 1992). However, the calculation of the expected return ($\hat{R}_{i,t}$) heavily depends on the risk model employed. The following two subchapters describe the two most frequently applied two out of four approaches. The market model is used as the primary model for the computation of the CARs in this thesis. A comparison of the market-adjusted model allows to check the robustness of the primary model (Beatty and Zajac, 1987).

### *IV.1.2.1 The market model*

The standard approach for computing the stock price return in the context of an event study is the market model (MM) (McWilliams and Siegel, 1997). Based on the CAPM, the market model defines the return on the share or stock price of firm *i* on day *t* as (Strong, 1992):

$$\hat{R}_{i,t} = \alpha_i + \beta_i * R_{m,t} + \varepsilon_{i,t} \qquad (2),$$

where

$\hat{R}_{i,t}$= the expected return on the share price of firm *i* on day *t*,

$\alpha_i$ = the intercept,

$\beta_i$ = the systematic risk of stock price *i*,

$R_{m,t}$ = the return of a market portfolio (e.g. a market index)

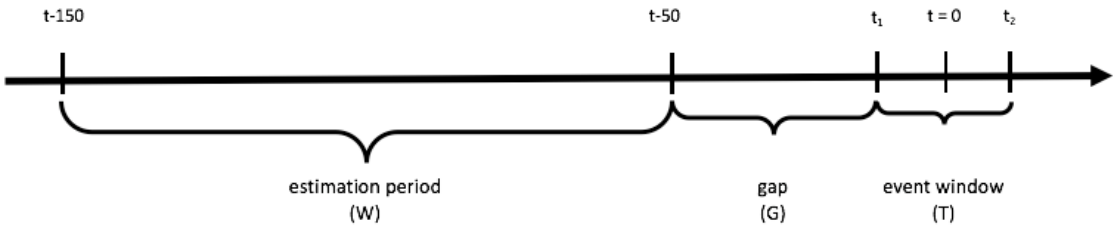
$\varepsilon_{i,t}$ = the error term (with an expected value that is equal zero)

An ordinary least squares (OLS) regression, which is explained in the eponymous chapter IV.3, of equation (2) over a certain estimation window (W) preceding the event gives the parameter estimates for $a_i$ and $b_i$, yielding the following equation for the abnormal return for the stock *i* on day *t* ($AR_{i,t}$) for the market model:

$$AR_{i,t} = R_{i,t} - (a_i + b_i * R_{m,t}) \qquad (3).$$

The estimation window (W) of the market model in this study encompasses the trading days t-150 to t-50. The event window (T) is characterized by $t_1$ marking the beginning and $t_2$ marking the end of the event window. Between the estimation window (W) and the event window (T) is a gap (G) of 50 days to ensure no overlapping and to prevent the inclusion of information that has been published directly prior to the event. These parameters represent the default parameters of Event Study by WRDS. Figure 1 illustrates the time line of the event study methodology.

**Figure 1:** Timeline of the Event Study Methodology




In a next step the abnormal returns (AR) are cumulated over the event window (T) to obtain the cumulative abnormal return (CAR):

$$CAR_{i,T} = \sum_{t_1}^{t_2} AR_{i,t} \qquad (4).$$

Finally, the CAR is standardized (SCAR) to provide comparability of the whole cross-sectional distribution of the residuals (Dodd and Warner, 1983) and to assume independency and identical distribution of the residual (McWilliams and Siegel, 1997):

$$SCAR_{i,T} = \frac{CAR_{i,T}}{\sqrt{W * VAR(\varepsilon_i)}} \quad (5),$$

where

$SCAR_{i,T}$ = the standardized cumulative abnormal return of stock *i* over the event window *T*

$W$ = the length of the estimation window in days

$VAR(\varepsilon_i)$ = variance of the residuals from the estimation of the market model for stock *i*.

### *IV.1.2.2 The market-adjusted model*

In contrast to the market model (MM), the market-adjusted model (MAM) assumes that the expected return of stock *i* equals the expected market return in that period (Strong, 1992). This implies a beta of one ($\beta = 1$) since the beta measures the systematic risk of a stock in comparison to the whole market (Fama and French, 2004), and an alpha of zero ($\alpha = 0$). Therefore, equation (2) is reduced to:

$$\hat{R}_{i,t} = R_{m,t} \qquad (2.1),$$

where

$\hat{R}_{i,t}$= the expected return on the share price of firm *i* on day *t*,

$R_{m,t}$ = the return on a market portfolio (e.g. a market index)

Eventually, this affects the computation of the abnormal return leading to a transformation of equation (3) to:

$$AR_{i,t} = R_{i,t} - R_{m,t} \qquad (3.1)$$

The further steps are similar to the calculation of the SCAR in the market model, and are therefore not explained again. Although the computation of the SCAR was outsourced to Event Study by WRDS, the description of each step in the calculation is presented to provide an understanding of the procedure and to show the models on which the dependent variable rests. Regarding the application of the MAM, Event Study by WRDS uses the CRSP Value-weighted market return for $R_{m,t}$. CRSP stands for 'Center of Research on Securities Prices' (University of Chicago). Its tapes include data from firms listed on the NYSE and formerly listed on the AMEX.

### *IV.1.2.3 Event Windows*

As equation (5) indicates, the computation of the cumulative abnormal returns depends on the definition of the event window (T). The range of *T* varies in the existing literature. While most of the researchers employ an event window of three to five days around the announcement event (Reinganum, 1985; Friedman and Singh, 1989; Shen and Cannella, 2003), others select multiple event windows (Davidson, Worrell and Cheng, 1990) and some only observe the ARs on the day of the

announcement date and the day preceding (Warner, Watts and Wruck, 1988; Bonnier and Bruner, 1989; Lubatkin *et al.*, 1989). Because the stock market reflects new information rapidly (Fama *et al.*, 1969) a rather short event window is applicable, though, due to the risk of information leakage, or delay, a short event window might not capture the full evaluation of the succession event (Lubatkin and Shrieves, 1986). This suggests the additional usage of a longer event window. Therefore, the dependent variable, defined as the cumulative abnormal return, is measured by four different event windows. Each event window is labeled by $T_j$ and $CAR_j$, where j refers to the number of trading days included in the event window.

- Event window $T_1$: $t = 0$
    - $CAR_1$ = is the cumulative abnormal return on a stock price on the announcement date
- Event window $T_3$: $t_1 = t\text{-}1$ & $t_2 = t+1$
    - $CAR_3$ = is the cumulative abnormal return on a stock price over the period t-1 to t+1
- Event window $T_7$: $t_1 = t\text{-}3$ & $t_2 = t+3$
    - $CAR_7$ = is the cumulative abnormal return on a stock price over the period t-3 to t+3
- Event window $T_{21}$: $t_1 = t\text{-}10$ & $t_2 = t+10$
    - $CAR_{21}$ = is the cumulative abnormal return on a stock price over the period t-10 to t+10

For each of these event windows the CAR has been retrieved from Event Study by WRDS. Controls regarding confounding events encompass a period of 20 days preceding the announcement and 2 days following it, which infers that an exclusion of bias cannot be guaranteed for the last two event windows and the corresponding CAR.

### IV.1.3 Independent variables

Of the multitude of variables tested in the context of management succession, two attracted the most attention: pre-succession performance and successor origin. Both are believed to be influential factors of the stock market response to CEO announcements. Hence, the literature review suggests the consideration of these variables as independent variables (IV). At the same time, this thesis aims at

building bridges between research in the field of psychology, finance and strategic management by incorporating the psychological concept of narcissism in a financial model that attempts to assess the strategic value of a management succession. To achieve this goal, narcissism enters the empirical analysis as the third IV. Issues related to data accessibility and availability limited the information on performance, narcissism, and other variables for certain firms and CEOs. Due to this the sample size decreases for some variables.

### *IV.1.3.1 Pre-succession Performance*

Traditionally, strategic management research used accounting measures to assess corporate performance (Lubatkin and Shrieves, 1986). Most common are measures based on sales, equity or assets (Friedman and Singh, 1989; Davidson, Worrell and Cheng, 1990; Shen and Cannella, 2003) that are defined in relation to some kind of profit measure. This approach is adopted resulting in the following set of performance measures. Data on the measures was gathered from Compustat (via WRDS). Instead of simply taking the accounting measure of the year preceding the succession event, an average over the two years preceding the event is calculated to avoid bias.

- Mean return on equity
    - RoE = the quotient of total stockholder's equity and its net income or loss.

$$RoE = \frac{Equity}{Net\ Income} \qquad (4)$$

    - $RoE_m$ = the mean of the company's RoE over the two years preceding the announcement (t-1 and t-2).

$$RoE_m = \frac{RoE_{t-1} + RoE_{t-2}}{2} \qquad (5)$$

- Mean return on sales
    - RoS = the quotient of the company's total revenue and its net income or loss.

$$RoS = \frac{Total\ reveneue}{Net\ Income} \qquad (6)$$

    - $RoS_m$ = the mean of the company's RoS over the two years preceding the announcement (t-1 and t-2).

$$RoS_{\text{m}} = \frac{RoS_{\text{t-1}} + RoS_{\text{t-2}}}{2} \qquad (7)$$

- Mean return on assets
    - RoA = the quotient of the company's total assets and its net income or loss.

$$RoA = \frac{Total\ assets}{Net\ Income} \qquad (8)$$

    - $RoA_{\text{m}}$ = the mean of the company's RoA over the two years preceding the announcement (t-1 and t-2).

$$RoA_{\text{m}} = \frac{RoA_{\text{t-1}} + RoA_{\text{t-2}}}{2} \qquad (9)$$

Because the use of distinctive accounting measures to quantify the performance of a corporation is associated with certain problems (Lubatkin and Shrieves, 1986) a mean of the standardized measures is included as well. Calculating the mean of the all the accounting based performance measures (PerfM) is conducted in two steps. First, the individual measures are standardized. E.g for $RoS_{\text{m}}$:

$$RoS_{\text{s}} = \frac{ROSm - \overline{RoSm}}{SD} \qquad (10),$$

where

$RoS_{\text{s}}$ = the standardized measure of $RoS_{\text{m}}$

$RoS_{\text{m}}$ = the corporation's RoS over the two years preceding the announcement

$\overline{RoS_{\text{m}}}$ = the sample mean of $RoS_{\text{m}}$

SD = the standard deviation of the sample

This procedure is applied to $RoE_{\text{m}}$ and $RoA_{\text{m}}$, as well. As a second step the simple mean of the standardized measures is taken

$$PerfM = \frac{RoS_{\text{s}} + RoE_{\text{s}} + RoA_{\text{s}}}{3} \qquad (11).$$

The procedure to obtain an index for pre-succession performance is taken from Chatterjee and Hambrick (2007) and their computation of a composite measure for CEO narcissism. For the upcoming analysis, the standardized and averaged measure Perf M is taken as the primary variable for pre-succession performance. The intention thereby is to mitigate issues associated with the application

of a specific measure. Moreover, distinctive measures might not depict the performance of the corporation correctly due to specifics regarding industry and firm characteristics as well as balance sheet management. For better readability, the individual measures $RoS_m$, $RoE_m$ and $RoA_m$ are from now on referred to as RoS, RoE and RoA.

### *IV.1.3.2 Successor Origin*

The second IV describes whether the successor already was employed at the corporation prior to his CEO announcement (insider) or not (outsider). Because this definition seems straightforward, scholars do not always highlight the distinction between insiders and outsiders (e.g. Beatty and Zajac, 1987). The lack of communication and differentiation of this pivotal variable lead to a heterogeneous definitions of successor origin (Friedman and Singh, 1989). Two major streams of defining successor origin addressed the issue by either simply separating insiders and outsiders based on their prior engagement with the corporation (Reinganum, 1985; Beatty and Zajac, 1987; Friedman and Singh, 1989) or by defining a certain benchmark measured in years of employment for both insiders and outsiders (Lubatkin *et al.*, 1989; Davidson, Worrell and Cheng, 1990). Especially the approach chosen by Lubatkin *et al.* (1989) seems plausible since it allows a clearer distinction between the two types. For instance, the consideration of an executive who has one week of experience as an insider might be misleading and distort the results. As both definitions of successor origin treat the variable as binary, insiders are always coded as 1 and outsiders as 0. The definition of successor origin in this thesis follows the narrower approach by Lubatkin *et al.* (1989) and is represented by the abbreviation 'IOn':

$Insider_n$ = individuals that have more than 5 years of experience with the corporation

$Outsider_n$= individuals that have less than 1 year of experience with the corporation.

The years of experience, thereby, do have to be immediately consecutive. To observe whether the two most common definitions of successor origin differ in their significance the second and broader approach (IOb) is implemented for robustness checks as well, resulting in:

$Insider_b$ = individuals that have prior experience with the firm

$Ousider_b$ = individuals that have no prior experience with the firm.

To obtain the information on the successor's prior employments Bloomberg's executive profiles is searched for every CEO and the press releases published in the FACTIVA® database are scrutinized.

### *IV.1.3.3 CEO Narcissism*

As already broached in chapter II.6, the measurement of this variable can be classified as obtrusive and direct or unobtrusive and indirect (Chatterjee and Hambrick, 2007). Due to the better accessibility of indirect measures the latter approach is chosen. The following four subchapters are based on the concepts developed by Chatterjee and Hambrick (2007) and delineate the procedure of collecting and coding of each variable. The CEO's use of first-person singular pronouns, as an additional measure of CEO narcissism (Chatterjee and Hambrick, 2007), is left out due inaccessibility of data. The remaining three individual measures are assumed to be under the direct control of the CEO, and therefore function as a proxy to communicate his standing and importance within the company to the investors. This eventually qualifies the measures as indictors of narcissism (Chatterjee and Hambrick, 2007). In line with Chatterjee and Hambrick (2007) an index of the three measures of narcissism is included, as well.

#### IV.1.3.3.1 Prominence of the CEO's photograph

To evaluate the prominence of the CEO's photograph, the company's homepage, especially the section on investors relations, is search for the annual report, 10k fillings, proxy statements or letters to shareholders. If available, the annual report is selected as the primary source of information. As suggested by Chatterjee and Hambrick (2007) the first year of the CEO's tenure is left out because of potential irregularities associated with the succession. Therefore, the average score for the second and third year of the CEO's tenure is calculated as shown:

$$NM1 = \frac{NM1_{t+1}+NM1_{t+2}}{2} \qquad (10),$$

where

NM1 = Narcissism measure for the prominence of the CEO's photograph,

$NM1_{t+1}$ = Value of NM1 for the second year of tenure,

$NM1_{t+2}$ = Value of NM1 for the third year of tenure,

for the following scaling of the first measure:

1 point = if there is no photograph of the CEO or no report in general

2 points = if the CEO shares the picture with another executive

3 points = if the CEO is photographed alone and the picture is smaller than half a page

4 points = if the CEO is photographed alone and the picture is equal or larger than half a page

If the available report showed several pictures of CEO, with or without fellow executives, the first picture is selected since this picture provokes the first impression of the CEO and, therefore, is most likely used by the CEO to convey the desired appearance. Data on the CEO tenure, especially the date he or she officially became CEO, is gathered through Compustat (via WRDS). When a CEO took over office in 2015 or 2016 and no report is published for two following years yet, the picture of CEO in the current annual reports is taken to measure NM1. Hereby, the value for a single year is taken instead of the average.

#### IV.1.3.3.2 CEO prominence in company press releases

The second measure for CEO narcissism (NM2) refers to the prominence of the CEO in the company's press releases. For each S&P 500 corporation the press releases are searched via FACTIVA®. Because the material released by the company is controlled and overseen by the CEO, as well, the appearances of the CEO's name can be linked to narcissism (Chatterjee and Hambrick, 2007). To observe the level of CEO narcissism the quotient of the number of times the CEO's name is mentioned in all the press releases excluding blogs, pictures, web news and other multimedia content, and the total number of articles on the corporation is taken.

$$NM2 = \frac{N_{\text{CEO}}}{N_{\text{Company}}} \qquad (11),$$

where

$N_{\text{CEO}}$ = the number of times the CEO's name is mentioned

$N_{\text{Company}}$ = the number of all articles on the company

To ensure that only the press releases for the company in question show up, the following criteria are chosen for the FACTIVA® search mask. Firstly, the command headline (hd) was used to guarantee that only the company in question is searched. Secondly, word count (wc) larger than 50 assures that dubious news is excluded. In some cases, however, the full name of the corporation results in problems or a surprisingly small number of hits because an abbreviation is commonly used to refer to the corporation (e.g. AIG for American International Group). Then, a second search for the abbreviation is conducted and the result is compared to the initial search. The higher number of both searches is taken as the denominator of the fraction. No modifications for the search on the number of press releases on the CEO is made.

#### IV.1.3.3.3 Measure of relative pay

The third variable assessing the level of CEO narcissism uses the CEO's salary in comparison to salary of the second highest paid executive as a measure of narcissism (Chatterjee and Hambrick, 2007).

$$NM3 = \frac{Total_{\text{CEO}}}{Total_{\text{Executive}}} \qquad (12),$$

where

$NM3$ = Measure of relative total pay

$Total_{\text{CEO}}$= Total pay of the CEO

$Total_{\text{Executive}}$ = Total pay of the second highest paid executive

Data on the compensation of the CEO and the executive are retrieved from ExecuComp (via WRDS).

#### IV.1.3.3.4 Narcissism index

The last measure to quantify narcissism, NMIndex, is an index of all the narcissism measures. The construction of the index follows the same procedure as with the PerfM. First, NM1 to NM3 are standardized and then a simple mean is taken.

$$NM1s = \frac{NM1 - \overline{NM1}}{SD} \quad (15),$$

where

NM1s = the standardized measure of NM1

$\overline{NM1}$ = the sample mean of NM1

SD = the standard deviation of the sample

This procedure is repeated for NM2 and NM3, as well. As a second step the simple mean of the standardized measures is taken

$$NMIndex = \frac{NM1s + NM2s + Nm3s}{3} \quad (16).$$

The purpose of the index is to incorporate the various aspects of each measure and construct a more general measurement for CEO narcissism.

### IV.1.4 Control variables

Aside from the dependent and independent variables, a set of CEO and firm control variables enters the forthcoming analysis to account for factors that already have proven or are expected to have an influence on the stock market reactions to the announcement of a new CEO. Based on the literature review, these variables emerge as influential.

The gender of the CEO is measured as a binary categorical variable. If the successor is male the variable is coded as 0 and 1 in the case of a female successor. The age of the CEO is measured as a metric variable, which depicts the age of the successor at the end of the announcement year. Another firm control that is frequently used is the size of the corporation (Friedman and Singh, 1989; Davidson, Worrell and Cheng, 1990). Although the sample of this thesis already focuses on the largest

corporations in the United States, there is still a difference regarding size within the sample. The number of employees (EMP) in thousands at the end of the year preceding the announcement is the chosen measure of size for this work because the succession event could have disruptive consequences for the work force. Although some industries might differ regarding labor intensity, this measure appears to be the most unbiased and appropriate. The market value of the corporation's equity and the total value of a corporation's assets are two alternatives to the proposed measure, however, their proximity to the dependent variable and the return on assets inhibits their application. The positions or number of titles the CEO holds displays his or her power, which in turn may influence the control the CEO has over the corporation and, finally affects the well-being of the firm (Finkelstein, 1992). Therefore, the variable CoB (Chairman of the Board) is created, taking the values 1 if the CEO additional is the CoB and 0 otherwise. As the sample used during the analysis only includes large U.S. firms, of which many are highly diversified (Christensen and Montgomery, 1981), the attempt to control for industry effects might not yield insightful results or even be deceptive. Data on all control variables (CVs) is either retrieved from ExecuComp (via WRDS) or Compustat (via WRDS).

## IV.2 Event study methodology

As its name already indicates, the purpose of this method is to observe and quantify the effect a certain and unanticipated event has on the stock price of a company (McWilliams and Siegel, 1997). In order to do so, the movement of the stock market prices is observed for patterns of abnormal performance that are caused by the announcement of the unanticipated event (McWilliams and Siegel, 1997) and the associated conveyance of new information (Beatty and Zajac, 1987). Previous studies already tested and affirmed the validity of this methodology to assess stockholders' reactions to the announcement of management succession (Friedman and Singh, 1989). The two steps necessary to evaluate whether a certain event causes an abnormal stock price movement are the definition and calculation of a benchmark, in this case the expected stock return, followed by a statistical analysis devoted to test if the actual or normal return significantly differs from its expected value.

The first step has already been described in the chapter IV.1.2 and, therefore is only briefly summarized. Based on the market model, historical values are used to compute the expected return of

a certain stock. Afterwards, abnormal performance is calculated by subtraction of the expected return from the actual return. In a last step, the abnormal returns are cumulated over certain event windows and standardized.

Secondly, test statistics are calculated to infer if abnormal performance exists. A frequently used method to assess the significance of the standardized CAR is the 'Patell Z' (Patell, 1976) and the t-statistic. The calculation of the Patell Z rests on the market model and weighs the abnormal returns according to the residual variance (Strong, 1992):

$$z_{\text{SCAR}} = \frac{\sum_{i=1}^{I} SCAR_{\text{i,T}}}{\sqrt{\sum_{i=1}^{I} \frac{T_i - 2}{T_i - 4}}} \qquad (15),$$

where

$SCAR_{\text{i,T}}$ = the standardized cumulative abnormal return for stock *i* over the event window *T*

I = the total number of stocks in the portfolio (e.g. S&P 500)

T = is the length of the event window in days.

For an in-depth explanation of the calculation see Patell (1976) or Strong (1992). The test assumes that the variance of the abnormal return is not affect by the event and that abnormal returns show cross-sectional independence (Patell, 1976). In addition to the Patell Z, the cross-sectional t-statistic is provided as a comparison because it allows for event-induced variance. The formula for the computation of the t-statistic is:

$$t_{\text{SCARi,t}} = \frac{SCAR_{\text{i, t}}}{SD_{\text{SCARi, t}}} \, (16),$$

where

$SCAR_{\text{i,T}}$ = the standardized cumulative abnormal return for stock *i* over the event window *T*

$SD_{\text{SCARi, t}}$ = the standard deviation of the $\text{SCAR}_{\text{i, t}}$

The test statistics are calculated for all event windows ($T_1$, $T_3$, $T_7$ and $T_{21}$).

## IV.3 Regression analysis

During the growth phase of research on management succession theory in the 1980s several scholars called for new methodologies to determine the effect of a succession event and the factors influencing the event itself (Hambrick and Mason, 1984; Kesner and Sebora, 1994; Datta and Rajagopalan, 1998). This thesis follows the call for such a 'new approach' by applying multiple cross-sectional regressions and panel data analyses to observe the factors influencing the stock market reactions to the announcement of a new CEO. These methods of statistical analysis are deliberately selected because they allow for ceteris paribus analysis (Wooldrigde, 2009). The value of controlling for many factors that concurrently influence the stock market return while observing the impact of a single factor is tremendous to this study. Both methodologies are applied since the results of the OLS regression depict whether or not differences within the cross-section have a significant influence, whereas FE addresses the differences between the values of a certain variable from one point in time to another. The sample structure allows the application of both methods, though FE is limited to companies experiencing more than one succession within the observed period.

The following two chapters present the major concepts of both methods and explain how to interpret the retrieved data. STATA®, a standard statistical analysis tool, is used to test the hypotheses. For a detailed view of all the assumptions and the derivation of the formula see Wooldridge (2009).

### IV.3.1 Multiple cross-sectional regression analysis

The basic model of a linear multiple regression analysis already allows testing for many potentially influential factors. Thereby, a cross-section of all the firms currently (August, 2016) listed in the S&P 500 is taken. Since this thesis includes a variety of factors there is a need for a ceteris paribus analysis. Due to this, multiple regression analysis is employed. The general model is best described as

$$y_{it} = a_0 + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k + u \qquad (17),$$

where

$y_{it}$ = the dependent variable

$a_0$ = the intercept

$\beta_i$ = the parameter associated with the variable $x_i$

$u$ = the idiosyncratic error term, including all others factors other than x affecting y.

The objective in regressing the independent variables $x_i$ on the dependent variable $y_{it}$ is to obtain the parameters $\beta_i$ and determine whether or not they are significantly different from zero. Hereby, the method of ordinary least squares (OLS) is used to estimate the betas or coefficients by minimizing the sum of squares of the difference between the observed and the predicted parameter. An efficient estimation of these coefficients, and hence, the justification of the OLS estimation, rests on a set of assumptions. The Gauss-Markov Theorem states that the OLS estimator $\hat{\beta}$ for $\beta_i$ is the best linear unbiased estimator (BLUE) if a set of certain assumptions holds true.

1. Linearity of parameters: $y_i = a_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + u$
2. Random Sampling
3. No perfect collinearity
4. Zero conditional mean of $u$: $E(u \mid x_1, x_2, \ldots x_k) = 0$
5. Homoscedasticity: $Var(u \mid x_1, x_2, \ldots, x_k) = 0$

Assumption 1 holds true due to structural equation and measurement of variables. Assumption 2 is violated since all companies of the S&P 500 are covered without a random selection process. Assumption 3 is tested by a correlation table including all variables used during the analysis. Exogeneity of the independent variables is assumed without the provision of any testing. The application of robust standard errors accounts for heteroscedasticity.

Several regressions including different dependent variable, independent variable and controls are conducted for the purpose of exploring the different factors influencing the stock market reactions to CEO announcements. Moreover, different measurements for narcissism are used to scrutinize its influence on the cumulative abnormal returns.

Variance inflation factors (VIF) are computed after all OLS regressions to ascertain that multicollinearity of the independent variables does not erode the validity of the test results. However, VIFs are not applicable to FE estimation. A value for the VIF of lower than two is considered

unproblematic since this implies that multicollinearity is not present. Until today, only a small amount of studies considered multicollinearity as an issue and even less used variance inflation factors to check for it (Giambatista, Rowe and Riaz, 2005). The VIFs are only reported if the threshold of two is passed.

### IV.3.2 Panel Data analysis

In comparison to OLS, panel data consists of a time series of all cross-sectional observations. Hereby, it demands that the same corporations of the cross-section are followed over time. Hence, panel data extends cross-sectional data by a time dimension. Panel data analysis is used to control for time invariant firm factors that may impact the dependent variable, thereby only observing the time variant variables. In doing so, at least two observations per firm are required to test, if the time dependent changes of certain independent variables influence the dependent variable. A firm identifier and a time variable are used to structure the panel data and uniquely define each CEO succession.

In this sample, panel data analysis is only applicable to companies that experience more than one CEO transition yielding a reduced sample size of 146 companies and 355 succession events. The number of observation (355) does not perfectly fit twice the number of companies (296) since some firms experience more than one succession between 2006 and 2016. Moreover, the sample is unbalanced since the span and number of time periods for each cross-sectional unit differs and the panel variable, a company identifier, shows gaps. Details on the methodology are provided in the following chapters.

#### *IV.3.2.1 Fixed effects estimation*

As already indicated, fixed effects estimation is based on standard OLS, but includes at least two observations for each member of the cross-section. To incorporate this time dimension, the equation

$$y_{it} = a_i + \beta_1 x_{it1} + \beta_2 x_{it2} + \cdots + \beta_k x_{itk} + u_{it} \quad (17),$$

is average over time t = 1, 2, …, T for each firm *i*, resulting in

$$\bar{y}_i = a_i + \beta_1 \bar{x}_1 + \beta_2 \bar{x}_2 + \ldots + \beta_k \bar{x}_k + \bar{u}_{it} \quad (18),$$

where for example $\bar{y}_i = \frac{\sum_{t=1}^{T} y_{it}}{T}$.

This procedure is applied to all variables of the equation. The unobserved and time invariant factor $a_i$ is fixed over time, therefore it appears in both equations (17 & 18). Subtracting the latter equation from the first yields an equation that is not dependent on time:

$$y_{it} - \bar{y}_I = \beta_1 (x_{it} - \bar{x}_1) + \beta_2 (x_{it} - \bar{x}_2) + \ldots + \beta_k (x_{it} - \bar{x}_k) + u_{it} - \bar{u}_{it,} \text{ for t = 1,2, …, T} \quad (19),$$

or

$$\tilde{y}_{it} = \beta_1 \tilde{x}_{it1} + \beta_2 \tilde{x}_{it2} + \ldots + \beta_k \tilde{x}_{itk} + \tilde{u}_{it} \text{ for t = 1,2, …T} \quad (20),$$

where $\tilde{y}_{it} = y_{it} - \bar{y}_i$ is called time-demeaned data of y.

The same applies for $\tilde{x}_{it1}$ and $\tilde{u}_{it}$, as well. The major effect of this fixed effects transformation or 'within transformation' is that the unobserved effect $a_i$ no longer is part of equation 20. Due to this the usage of pooled OLS on the time-demeaned variables produces the fixed effects estimator. The latter is also called 'within estimator'. In the context of fixed effects estimation, the adjective 'within' refers to the observation of time related changes in the dependent and independent variables within each cross-section. A 'between estimator', to the contrary, describes the estimators resulting from a pooled OLS regression of equation 18. For the FE estimator to be unbiased it is assumed that the idiosyncratic error terms are uncorrelated over all time periods.

FE estimation is employed to observe the impact of the IVs, while controlling for all time invariant and unobservable firm effects. It hereby accounts for heterogeneity among the companies and controls for the assumption of a correlation between the error term and the predictor variables. The objective is to measure and test the influence of time variant changes in CEO narcissism, successor origin and pre-succession performance between at least two CEO announcements. Excluding all time invariant effects eliminates firm effects that influence the stock market at any time and helps to focus on the incremental impact of the new information and the influence of the independent variables.

#### *IV.3.2.2 Comparison to random effects estimation*

The key assumption of a random effect (RE) estimation and its main distinctive characteristic to the FE estimator is, that the unobserved effect of the factor $a_i$ needs to be uncorrelated with all the explanatory variables for each firm *i* and time periods *t*:

$$Corr(x_{it}, a_i) = 0 \text{ for t = 1, 2, …, T and i = 1, 2, …, I} \qquad (21).$$

FE estimation, in contrast allows for arbitrary correlation, due to which ceteris paribus effects of panel data are commonly analyzed by applying FE estimation. Based on this difference, RE estimation is limited to cases where equation 21 holds true, while FE estimation is generally applicable to most kind of panel data. Thus, FE estimation is the primary tool to analyze panel data and RE is only applied, if for instance the dependent variable is constant over time. Additionally, the sample of this analysis, which consists solely of large U.S corporations, cannot be treated as a random sample, which further supports the application of FE. For further detail on the RE estimation see Wooldridge (2009).

Nonetheless, it is tested if the data also allows the application of RE. A statistical method to determine, if the application of RE is legitimate, is the Hausman Specification Test (Hausman, 1978). The $H_0$ of the test is that RE is efficient and, hence applicable, while estimation by FE is always suitable to analyze panel data. The test is performed by the inbuilt STATA® command and is considered a standard test when handling panel data, due to which no further explanation is provided. Although the $H_0$ cannot be rejected, meaning that RE estimation is applicable, FE estimation is used.

# V Empirical Analysis

## V.1 Event Study

An empirical analysis of the effects of a certain event on the stock market means testing if the observed and predicted value of a given stock differs significantly from each other. In other words, it is tested, if the difference of the observed and predicted stock price is significantly different from zero. Two test statistics, the Patell Z and the t-statistic, are provided to assess the difference. In absence of abnormal performance both statistics follow a normal distribution. The following tables show the

mean ARs for an event window of 21 days. Since the market model is considered the primary model to compute the CARs, only the ARs on the MM are presented. Test statistics are provided as well.

**Table 1**: The Patell Z and t-statistic for the mean abnormal returns

| Model | Day | Mean AR | t-statistic | Patell Z |
|---|---|---|---|---|
| MM | -10 | -0,0007 | -0,8409 | -0,7987 |
| MM | -9 | -0,0002 | -0,2364 | -0,1803 |
| MM | -8 | 0,0014 | 1,4720 | 1,7459* |
| MM | -7 | -0,0010 | -1,1192 | -0,6200 |
| MM | -6 | -0,0005 | -0,5071 | -0,4073 |
| MM | -5 | -0,0007 | -0,6654 | -1,3058 |
| MM | -4 | 0,0009 | 0,7501 | 1,6096 |
| MM | -3 | -0,0019 | -1,2768 | -1,5215 |
| MM | -2 | -0,0019 | -1,7883* | -2,0180** |
| MM | -1 | -0,0002 | -0,1312 | 0,8997 |
| MM | 0 | -0,0003 | -0,2231 | -0,4992 |
| MM | 1 | 0,0004 | 0,1848 | -0,0823 |
| MM | 2 | 0,0022 | 1,1823 | 1,3123 |
| MM | 3 | -0,0007 | -0,6334 | -0,3314 |
| MM | 4 | -0,0005 | -0,4388 | -1,6658* |
| MM | 5 | -0,0001 | -0,0643 | -0,2995 |
| MM | 6 | 0,0003 | 0,3703 | 0,1646 |
| MM | 7 | -0,0015 | -1,2440 | -2,0459** |
| MM | 8 | 0,0013 | 1,2792 | 2,1669** |
| MM | 9 | 0,0013 | 1,2381 | 2,3624** |
| MM | 10 | -0,0006 | -0,5632 | -0,6013 |

*** p<0.01, ** p<0.05, * p<0.1
N = 437

Table 1 provides an overview of the mean abnormal returns of the broadest event window. Therefore, the mean abnormal returns of all other event windows are also included. The data presented suggests that there is no clear pattern regarding the movement of abnormal returns around the announcement date. The application of the Patel Z yields the following results. The return two days prior and four days after the event are significantly negative, though the latter is only significant at 0.1 level. On the announcement date of a CEO transition the stock market the return is not significantly different from zero. After the announcement, significantly negative AR are observed, which eventually turn positive after 8 days. The application of a t-test only yields a significant and negative AR for the day t-2.

Overall it can be stated that the analysis of the abnormal returns indicates that the announcement of a CEO does not seem to provoke a market reaction, which speaks in favor of rejecting Hypothesis 1.

Table 2 shows the cumulative abnormal return of the predefined event windows and the corresponding test statistics. The statistical analysis of the CARs illustrates that none of the returns of the market model are significant at any commonly used significance level. In other words, stock markets do not react to CEO announcements. Hence, Hypothesis 1 needs to be rejected. Table 2 additionally depicts that only the CAR of the 3-day event window is positive, yet insignificant. Nonetheless, the results only hold true for the cross-sectional average, due to which it might be possible that individual corporations experience abnormal performance around the announcement date. To test these results for robustness, variations of the estimation period (W) and the gap (G) are applied. While the original estimation period included 100 days, the alternative version is extended to 200 days. The modification of the gap (G) either reduces the period by 20 days or extends it by 20 days. The application of all the potential combinations of the estimation period (W) and the gap (G) shows no difference regarding the significance of the cumulative abnormal returns.

**Table 2:** The Patell Z and t-statistic for the cumulative abnormal returns

| | CAR1MM | CAR3MM | CAR7MM | CAR21MM |
|---|---|---|---|---|
| CAR | -0,00031 | 0,000034 | -0,00210 | -0,00275 |
| Patell Z | -0,4992 | 0,3109 | -0,8060 | -0,4314 |
| t-statistic | -0,2231 | 0,0145 | -0,6371 | -0,5548 |

*** p<0.01, ** p<0.05, * p<0.1
N = 437

Moreover, separated testing for the three days preceding and three days following the announcement does not produce results that are significant either. Therefore, the results appear to be robust. In comparison to the market model, the application of the market-adjusted model does not generate any significant differences. This holds true for the application of different estimation periods (W) and gaps (F), as well.

## V.2 Descriptive analysis

### V.2.1 Correlations

Correlation tables are a part of the preliminary analysis employed to assess the data structure and relations between variables. Although the multitude of variables used during this thesis limits the readability of a table encompassing all variables, it is still the most appropriate form of illustrating the correlations between all variables.

**Table 3:** Correlation Matrix

| | IOn | IOb | Age | Gender | CoB | NM1 | NM2 |
|---|---|---|---|---|---|---|---|
| IOn | 1.0000 | | | | | | |
| IOb | 0.9472** | 1.0000 | | | | | |
| Age | 0.0036 | 0.0436 | 1.0000 | | | | |
| Gender | -0.0262 | -0.0108 | 0.0424 | 1.0000 | | | |
| CoB | 0.1784** | 0.1774** | 0.2558** | 0.0404 | 1.0000 | | |
| NM1 | 0.0412 | 0.0398 | 0.1301** | 0.0851 | 0.2372* | 1.0000 | |
| NM2 | 0.0359 | 0.0099 | -0.0309 | -0.0576 | 0.0557 | 0.0604 | 1.0000 |
| NM3 | -0.3897** | -0.3213** | 0.0289 | -0.0063 | -0.0570 | 0.0640 | 0.0084 |
| NMIndex | -0.0861 | -0.0873 | 0.0457 | 0.0088 | 0.1433** | 0.6104** | 0.5957** |
| EMP | 0.0851 | 0.0732 | 0.0191 | 0.0162 | 0.1720** | 0.1351** | -0.0758 |
| RoA | 0.2106** | 0.2014** | -0.0545 | 0.0242 | -0.0989 | 0.0008 | 0.0550 |
| RoS | 0.2122** | 0.2018** | -0.1363** | 0.0144 | -0.0141 | -0.0156 | -0.0297 |
| RoE | 0.1648** | 0.1731** | 0.0172 | 0.0132 | -0.0087 | -0.0050 | 0.0789 |
| PerfM | 0.2403** | 0.2298** | -0.0363 | 0.0194 | -0.0850 | 0.0165 | 0.0717 |
| CAR1MM | -0.0538 | -0.0132 | 0.0050 | 0.0004 | 0.0060 | 0.0958 | -0.0240 |
| CAR3MM | -0.0753 | -0.0231 | -0.0353 | 0.0107 | -0.0378 | 0.0389 | 0.0097 |
| CAR7MM | -0.0889 | -0.0688 | 0.0037 | 0.0300 | -0.0689 | 0.0883 | 0.0334 |
| CAR21MM | -0.0900 | -0.0637 | 0.0284 | 0.0271 | -0.0810 | 0.0964 | 0.0586 |

| | NM3 | NMIndex | EMP | RoA | RoS | RoE | PerfM |
|---|---|---|---|---|---|---|---|
| NM3 | 1.0000 | | | | | | |
| NMIndex | 0.5884** | 1.0000 | | | | | |
| EMP | -0.0619 | -0.0011 | 1.0000 | | | | |
| RoA | -0.0631 | 0.0049 | 0.0729 | 1.0000 | | | |
| RoS | 0.0083 | -0.0244 | -0.0069 | 0.4506** | 1.0000 | | |
| RoE | 0.0053 | 0.0503 | 0.0370 | 0.3315** | 0.2122** | 1.0000 | |
| PerfM | -0.0459 | 0.0322 | 0.0584 | 0.8630** | 0.7366** | 0.7194** | 1.0000 |
| CAR1MM | 0.0757 | 0.0565 | -0.0105 | -0.0647 | -0.0337 | -0.0986 | -0.1130** |
| CAR3MM | 0.1184** | 0.0945 | 0.0023 | -0.0382 | -0.0650 | 0.0247 | -0.0588 |
| CAR7MM | 0.0538 | 0.1436** | 0.0372 | 0.0196 | -0.3720* | 0.0284 | 0.0233 |
| CAR21MM | 0.0666 | 0.1569** | 0.0525 | 0.0025 | -0.2513* | 0.0028 | -0.0249 |

| | CAR1MM | CAR3MM | CAR7MM | CAR21MM |
|---|---|---|---|---|
| CAR1MM | 1.0000 | | | |
| CAR3MM | 0.4519** | 1.0000 | | |
| CAR7MM | 0.3070** | 0.6316** | 1.0000 | |
| CAR21MM | 0.3235** | 0.3825** | 0.6864** | 1.0000 |

** $p<0.05$

Table 5 presents the correlation matrix of all the variables employed in this thesis. The dependent variables based on the market-adjusted model have been left out because they only function as a

robustness check. As shown, each of the cumulative abnormal returns are significantly correlated at a 5% level. CARs of the same event window but different models are almost perfectly correlated.

Regarding the measures of CEO narcissism, it can be stated that only the average measure, NMIndex, is correlated to the other measures. The weak correlations among NM1, NM2 and NM3 might indicate that each measurement quantifies a different aspect of CEO narcissism. The positive sign of each coefficient states a positive, insignificant and linear relationship between the measurements. However, it is not possible to derive the value of a certain narcissism measurement based on the values of the remaining measures, due to the weak and insignificant correlations. The overall weak correlation stands in contrast to the findings of Chatterjee and Hambrick (2007).

The two measurements of successor origin are significantly and positively correlated. As already outlined, the two measures only differ regarding CEOs with more than one but less than five years of experience with the firm. While IOb codes these CEOs as insiders, IOn excludes them. All the measures of pre-succession performance are significantly correlated. The correlation is consistently positive. The control variable Chairman of the Board (CoB) is significantly and positively related to the number of employees and the age of the CEO. The remaining controls are not significantly correlated.

In conclusion, potential issues based on multicollinearity among the independent variables can be neglected since the correlation between the IVs is not too strong.

### V.2.2 Sample description

Prior to an in-depth analysis of the factors influencing the cumulative abnormal returns, a descriptive analysis of the data is provided. Since the characteristics of the dependent variables have already been explained in chapter IV.1.2, this chapter is devoted to the independent and control variables. As a result of issues regarding data availability, the final data set includes only 408 observations in comparison to 437 CEO announcements that qualified for further analysis.

The most crucial independent variable of this thesis is CEO narcissism. NM1, which is based on the size of the CEO pictures in the annual report, takes the values 1 to 4 depending on the size of the picture, with 4 representing the highest level of narcissism. On average the CEOs in the sample

score 1.9 for NM1, which indicates rather low narcissistic tendencies among the CEOs. The total sample includes 408 observations. NM2 refers to the number of articles including the name of a CEO in relation to the total number of all articles on the company. The lowest score associated to a CEO is 0 and the maximum is 0.42. However, the FACTIVA® database only includes a surprisingly small number of articles for some firms, which entails that this measure could be biased. On average a CEO's name is mentioned in 3 out of 100 articles, which seems rather low. The total sample size includes 407 observations. The last single measure on CEO narcissism, NM3, sets the CEO's salary in comparison to that of the second highest paid executive. On average the CEO earns twice as much as the second highest paid executive. The original minimum of the sample was -18, which appears to be odd. This anomaly occurs in 3 out of 331 observation and rest on a negative payment of the second highest paid executive. Since these three values obviously represent outliers they are excluded from the sample, which leads to an increased mean of 2.2 and a minimum of roughly 0. A maximum of 15.3 indicates that a certain CEO earns more than 15 times the salary of the second highest paid executive. The sample size encompasses 328 operations for NM3. Finally, the averaged measure for CEO narcissism, NMIndex, has a mean of 0.31, a minimum value of -0.87 and reaches its maximum at a score of 2.29. Negative values are based on the standardization of the individual measures. The total number of observations is 327.

The measurement of successor origin only allows values of either 0 or 1. The definition of insiders as individuals that have prior experience with the company and outsiders as individuals with no prior experience with the firm (IOb) yields 365 insiders ($Insider_b$; 87%) and 52 outsiders ($Outsider_b$; 13%). Therefore, the total sample encompasses 408 observations and has a mean of 0.87. The narrower definition of insiders and outsiders is based on their tenure with the firm (IOn). 298 CEOs show more than 5 years of experience with the firm ($Insider_n$; 84%), while 57 have less than a year of experience with the company before being promoted to CEO ($Outsider_n$; 16%). The total sample size is reduced to 355 CEOs because those with more than one year but less than 5 years of experience (53 CEOs) are excluded. The mean is 0.84.

On average the companies included in the sample achieved a RoA of 6%, a RoE of 15% and a RoS of 6% during the two years preceding the CEO transition. The scope of the RoA goes from -55%

to +33%. The lowest and highest values for the return on equity are -943% and +891%, respectively. The minimum of the RoS is -613% compared to a maximum of +70%. Because these numbers are prone to balance sheet optimization, economic circumstances and strategic manipulation the scope of the returns is less meaningful than the mean. On average, all firms achieved positives returns during the two years before the CEO announcement. Nonetheless, a positive return does not automatically guarantee good performance in the eye of the shareholder since their expectations might be biased due to prior outstanding performance or an overall increase of returns within the industry. The sample includes 381 observations for the RoA, 347 for the RoE and 384 for the RoS. The mean performance measure (PerfM) has mean of 2,4%, a minimum of -568% and a maximum of 416%. The total number of observations is 344.

The youngest CEO in the sample only is 34 years old, while the oldest is 97. On average the 408 CEOs are 56 years old. The binary variable Gender encompasses 21 (5%) promotions of females to the CEO position and 387 (95%) male promotions yielding a mean of 0.05 for 408 observations. The descriptive analysis of the control variable Chairman of the Board (CoB) shows that out of 359 CEOs observed, 150 (42%) additionally hold the position of Chairman of the Board, 209 (58%) do not. The mean of CoB, hence, is 0.42. The measurement of company size is defined as the number of employees (EMP) in thousands. The smallest firm in the sample only has 154 employees, whereas the largest has 2.2 million. On average, each firm has 60.000 employees. The sample size consists of 386 observations.

Although, the sample selected for this thesis exclusively consists of large U.S. corporation that are listed in the S&P 500, the existing difference regarding size within the sample is astonishing. Therefore, the sample is not as homogenous as expected.

## V.3 Regression analysis

The explorative nature of this thesis as well as the variety of variables and measurements demands a multitude of regressions to determine which measures of the DVs, IVs and controls are most suitable to identify the factors influencing the stock market reaction to CEO announcements. Hence, not all tables can be presented in this chapter. The variety of control variables deliberately employed in this

thesis may help to focus the relationship of the IVs and control variables on the dependent variable. However, further testing is required to assess which variables determine the stock market reaction.

Basic OLS and FE regressions for each DV are present within the same table to support a straightforward structure, comparability of the results, and the deduction of conclusions. The model's number distinguishes the two distinctive methodologies, where a 1 as the second digit signals basic OLS (e.g. 1.1) and a 2 as the second digit signals FE (e.g. 1.2). As a first step, preliminary regressions are applied to observe the individual effect of each measurement of the IVs. Robust standard errors are used to account for heteroscedasticity and the market model is used as the primary model. All interpretations and conclusion rest on a ceteris-paribus-analysis.

### V.3.1 Preliminary regressions

In this section, a closer look on the effects of the control variables is provided. This precedent step is taken to assess the impact of the control variables prior to the inclusion of the independent variables. The procedure facilitates the eventual interpretation of the independent variable's impact since the exclusive impact of the control variables on the dependent variable is already known.

Table 11 provides an overview of these effects. Each model (1 to 4) consists of two alternatives, basic OLS and FE, including a different dependent variable and the complete set controls. While Age and Gender do not significantly influence the dependent variable for any model, regardless whether basic OLS or FE is applied, CoB and EMP show an impact for certain dependent variables. In the case of model 2.2 CoB has a significantly negative impact on the DV. Hence, a more powerful CEO is negatively evaluated by the stock market. The respective FE regression (2.1) shows no impact of CoB, indicating that the net effect is insignificant. Models 3.2 to 4.2, in contrast, support the notion that that additional power of the CEO decreases the stock market returns, although some coefficients are only significant at a 0.1 level. EMP, as the measure of corporate size, significantly and positively affects the dependent variables of models 3.1 and 4.1. The respective FE regression, 3.2 and 4.2, show a negative impact of size, significant at a 0.1 level. Therefore, the influence of firm size appears to be correlated to time invariant firm effects associated with CEO successions yielding a biased result for OLS and a negative net effect.

**Table 4:** OLS and FE estimation of the control variables

| MODELS | (1.1) CAR1MM | (1.2) CAR1MM | (2.1) CAR3MM | (2.2) CAR3MM | (3.1) CAR7MM | (3.2) CAR7MM | (4.1) CAR21MM | (4.2) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00005 | 0.00029 | -0.00025 | 0.00012 | 0.00053 | -0.00045 | 0.00108 | 0.00035 |
| | (0.00023) | (0.00044) | (0.00042) | (0.00055) | (0.00100) | (0.00083) | (0.00116) | (0.00151) |
| Gender | 0.00013 | -0.02263 | 0.00269 | -0.02299 | 0.01172 | -0.00226 | 0.01660 | 0.10327 |
| | (0.00421) | (0.01530) | (0.00653) | (0.01810) | (0.01211) | (0.00867) | (0.01596) | (0.06320) |
| CoB | 0.00003 | -0.00407 | -0.00256 | -0.03955** | -0.01135 | -0.03814** | -0.02235* | -0.06000* |
| | (0.00244) | (0.01175) | (0.00507) | (0.01956) | (0.00864) | (0.01618) | (0.01233) | (0.03602) |
| EMP | -0.00000 | -0.00003 | 0.00000 | -0.00044 | 0.00002** | -0.00055* | 0.00004** | -0.00122* |
| | (0.00000) | (0.00011) | (0.00001) | (0.00040) | (0.00001) | (0.00032) | (0.00002) | (0.00066) |
| Constant | -0.00331 | -0.01234 | 0.01605 | 0.04051 | -0.02805 | 0.07686 | -0.05974 | 0.07435 |
| | (0.01285) | (0.02720) | (0.02421) | (0.04182) | (0.05360) | (0.05462) | (0.06425) | (0.09727) |
| Observations | 337 | 337 | 337 | 337 | 337 | 337 | 337 | 337 |
| R-squared | 0.00032 | 0.02057 | 0.00262 | 0.12525 | 0.01367 | 0.09366 | 0.01770 | 0.14280 |
| Number of PERMNO | | 284 | | 284 | | 284 | | 284 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The explanatory power of the FE estimation models, namely the 'R-square within', is always higher than the R-square of the basic OLS estimation. Hence, time invariant firm effects might explain some variations in the dependent variable. On average, the explanatory power of the control variables regardless of the kind of methodology is rather weak because at the maximum 14.2 percent of the variation in the dependent variable is explained.

As a second step, each independent variable is entered in a separate regression of all the control variables on the dependent variables. The objective is to observe the exclusive effect of the independent variables and assess their significance. Due to the multitude of possible combinations between the dependent variables and independent variables, the presentation of the regression tables is waived. Yet, the main findings are summarized. Detailed explanations on the relationship are not provided at this stage of the analysis since the objective solely is to check if the introduction of more explanatory variables affects the exclusive effect of each independent variable.

The regressions of IOn and all the control variables on each of the dependent variables do not indicate any impact of successor origin on the cumulative abnormal return (Appendix I). Substituting IOn by IOb, however, shows a significant positive effect of successor origin on the 21-days cumulative abnormal return (CAR21) for fixed effects estimation (Appendix II). Overall, the exclusive effect of successor origin is negligible. The pre-succession performance of the company, measured by PerfM, significantly influences the cumulative abnormal return CAR7 when fixed effects estimation is applied (Appendix III). Yet, the positive impact is only significant at a 0.1 level. The remaining regression show no impact of pre-succession performance.

The preliminary regressions of the independent variable NMIndex on each of the dependent variables reveals a positive and significant impact of CEO narcissism on the dependent variables CAR3 and CAR7 (Appendix IV). For both models, fixed effects estimation shows a significant positive net effect. The individual measures of CEO narcissism are not presented because their impact is secondary. The application of cumulative abnormal returns based on the market-adjusted model does not provide any additional insight.

### V.3.2 The effect of CEO narcissism on the stock market return

While previously conducted studies either included the RoS, RoE and RoA as measure of pre-succession performance; this thesis solely employs the performance mean over all measures (PerfM) as a measure of pre-succession performance. Mitigating the effect of each distinctive measure of pre-succession performance, as well as being able to conclude relationships that are not contingent on the usage of a certain set of performance measures, are just two reasons for its implementation. The same line of thought yields to the exclusive analysis of NMIndex as a measure of CEO narcissism. For each regression, the market model is used as the baseline. Comparisons to the market-adjusted model are used as a robustness check. All interpretations and conclusion rest on a ceteris-paribus-analysis.

Models 5 to 8 display the regression of the average measures PerfM, NMIndex, the remaining IV successor origin, and all the controls on the dependent variables. CEO narcissism, measures by NMIndex, is significant for both regressions including CAR3MM as the dependent variables, and for the OLS estimation of the dependent variables CAR7MM and CAR21MM. The effect of CEO narcissism in these models is consistently positive meaning that a more narcissistic CEO yields higher stock market returns. The OLS estimates for the coefficients of NMIndex might be biased due to a correlation between CEO narcissism and unobserved and time invariant firm effects, which is indicated by an insignificant net effect of the corresponding FE estimations.

At first, CEO narcissism has no impact on stock market reactions since its coefficient in model 5 is insignificant. Broadening the event window by two days yields a positive impact of CEO narcissism. Further extending the event window, however, erodes the effect of narcissism. In conclusion, H2 cannot be rejected because the coefficients for NMIndex are significant for the most commonly used event window and the corresponding dependent variable CAR3MM.

**Table 5:** OLS and FE estimation of the averaged measures of CEO narcissism and pre-succession performance

| MODELS | (5.1) CAR1MM | (5.2) CAR1MM | (6.1) CAR3MM | (6.2) CAR3MM | (7.1) CAR7MM | (7.2) CAR7MM | (8.1) CAR21MM | (8.2) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00018 | 0.00089 | -0.00018 | 0.00047 | -0.00043 | 0.00020 | 0.00040 | 0.00068 |
| | (0.00027) | (0.00068) | (0.00050) | (0.00077) | (0.00062) | (0.00093) | (0.00101) | (0.00157) |
| Gender | 0.00436 | -0.07248** | 0.00898 | -0.03874 | 0.00803 | -0.02258 | 0.00109 | 0.19760*** |
| | (0.00486) | (0.03198) | (0.00702) | (0.03355) | (0.01277) | (0.04482) | (0.01887) | (0.06146) |
| CoB | -0.00010 | -0.00351 | -0.00436 | -0.01229 | -0.00885 | -0.01514 | -0.03077* | -0.05275 |
| | (0.00322) | (0.00892) | (0.00764) | (0.01781) | (0.01087) | (0.01347) | (0.01803) | (0.04291) |
| EMP | -0.00000 | 0.00005 | 0.00001 | -0.00034 | 0.00002*** | -0.00046 | 0.00004** | -0.00118* |
| | (0.00000) | (0.00014) | (0.00001) | (0.00040) | (0.00001) | (0.00033) | (0.00002) | (0.00068) |
| IOn | 0.00882 | -0.00699 | 0.00837 | -0.01181 | 0.01902 | -0.00295 | 0.03537 | 0.03542 |
| | (0.00964) | (0.02261) | (0.01958) | (0.02719) | (0.02747) | (0.03705) | (0.04547) | (0.03012) |
| PerfM | -0.00274 | -0.01082*** | 0.00053 | -0.00228 | 0.00468 | 0.00070 | -0.00498 | -0.00846 |
| | (0.00204) | (0.00302) | (0.00458) | (0.00683) | (0.00433) | (0.00471) | (0.00844) | (0.01348) |
| NMIndex | -0.00148 | 0.00471 | 0.01027** | 0.02662** | 0.01614** | 0.01950 | 0.02746** | 0.02270 |
| | (0.00223) | (0.01144) | (0.00479) | (0.01164) | (0.00639) | (0.01742) | (0.01093) | (0.03149) |
| Constant | -0.01860 | -0.04220 | 0.00208 | 0.01646 | 0.00494 | 0.03129 | -0.04568 | 0.03045 |
| | (0.01729) | (0.03286) | (0.03459) | (0.04238) | (0.04663) | (0.05285) | (0.07874) | (0.09221) |
| Observations | 233 | 233 | 233 | 233 | 233 | 233 | 233 | 233 |
| R-squared | 0.02485 | 0.24398 | 0.02865 | 0.26197 | 0.05641 | 0.16928 | 0.05003 | 0.41018 |
| Number of PERMNO | | 207 | | 207 | | 207 | | 207 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.

The average measure of pre-succession performance is only significant for the FE estimation of the CAR1, where it negatively impacts the dependent variables. In this case, a better pre-succession performance yields a lower stock market return, as hypothesized in chapter III. Nonetheless, the remaining regressions do not support this notion. Therefore, the averaged measure of pre-succession performance only affects the market reactions on the announcement date of the CEO. This finally speaks in favor of not rejecting H4. The remaining IV, successor origin is not significant for any model and irrelevant for the investor's evaluation of the CEO transition. Hence, H3 is rejected.

While the effect of EMP is significant and positive for the OLS regression in the models 7.1 and 18.1, the FE estimation of model 8.2 shows a negative effect of firm size. This change in the coefficient's sign might originate from a correlation between the unobserved and time invariant firm effects and the explanatory variable. FE estimation accounts for this kind of correlation and shows the unbiased and negative net effect of EMP on the dependent variable. Because CoB only influences the cumulative abnormal return of model 8.1, it is not a considered a valid determinant. Gender shows a negative impact for model 5.2 but positive for model 8.2. Both regressions are based on FE. Hence, the effect of Gender may alter over time.

The models based on FE estimation explain between 17% and 41% of the variation of the DV, whereas OLS only yields an R-squared between 2% and 5%. Estimations based on the market-adjusted model do not provide additional insights, eventually fostering the robustness of the results. The substitution of IOn by IOb does not supply a different picture of the influence of NMIndex, though, it discloses a consistently negative effect of CoB on the dependent variables (Appendix V).

### V.3.3 A closer look on the measures of CEO narcissism

To better understand the facets of narcissism that impact the stock market during a certain event window, a more detailed analysis of the individual measures is provided. Although the index measure already incorporates all the individual effects, it might be worth looking at the individual influences to scrutinize the effect of each facet of CEO narcissism. This is done for each of the dependent variables. Thereby, the market model is used as the primary model and the market-adjusted model is used as a robustness check.

### *V.3.3.1 CAR1*

Table 6 shows the effect of each of the individual measures of CEO narcissism, the remaining independent variables and all the control on the dependent variable CAR1MM.

First and foremost, none of the measures of CEO narcissism are significant, for both OLS and FE, indicating that investors do not include CEO narcissism in their evaluation of the announcement of a new CEO on day t = 0. However, two other explanatory variables show a significant influence. Pre-succession performance consistently and negatively impacts the cumulative abnormal return, meaning that better performing corporations yield lower returns. This effect is revealed when controlling for unobserved and time invariant firm effects (FE). The second variable included in the investor´s assessment is Gender. All models estimated by fixed effects show a negative net influence of this variable. Therefore, the announcement of a female CEO decreases the stock market reaction at the announcement date. The insignificance of the OLS estimation indicates potential bias due to a correlation with unobserved and time invariant firm effects. A comparison to the same models estimated with market-adjusted returns does not provide further insights. Overall, the finding that Gender and pre-succession performance are the two variables shaping CAR1, is further supported.

**Table 6:** OLS and FE estimation of the individual narcissism measures on CAR1

| MODELS | (9.1) CAR1MM | (9.2) CAR1MM | (10.1) CAR1MM | (10.2) CAR1MM | (11.1) CAR1MM | (11.2) CAR1MM |
|---|---|---|---|---|---|---|
| Age | 0.00003 | 0.00093 | 0.00003 | 0.00077 | 0.00016 | 0.00091 |
| | (0.00026) | (0.00069) | (0.00026) | (0.00065) | (0.00027) | (0.00072) |
| Gender | 0.00199 | -0.07141** | 0.00183 | -0.06492** | 0.00431 | -0.06918** |
| | (0.00510) | (0.03152) | (0.00527) | (0.02979) | (0.00482) | (0.02785) |
| CoB | 0.00033 | -0.00945 | 0.00070 | -0.00293 | -0.00008 | -0.00224 |
| | (0.00302) | (0.00907) | (0.00292) | (0.00690) | (0.00311) | (0.00784) |
| EMP | -0.00000 | 0.00013 | -0.00000 | 0.00002 | -0.00000 | 0.00003 |
| | (0.00000) | (0.00014) | (0.00000) | (0.00011) | (0.00000) | (0.00012) |
| IOn | 0.00919 | -0.00873 | 0.00934 | -0.00613 | 0.00730 | -0.00884 |
| | (0.00722) | (0.01958) | (0.00729) | (0.01858) | (0.01096) | (0.02612) |
| PerfM | -0.00236 | -0.01121*** | -0.00222 | -0.00997*** | -0.00258 | -0.01037*** |
| | (0.00194) | (0.00360) | (0.00197) | (0.00284) | (0.00204) | (0.00262) |
| NM1 | 0.00064 | 0.00829 | | | | |
| | (0.00135) | (0.00561) | | | | |
| NM2 | | | -0.01459 | 0.19206 | | |
| | | | (0.01927) | (0.19202) | | |
| NM3 | | | | | -0.00069 | -0.00030 |
| | | | | | (0.00103) | (0.00300) |
| Constant | -0.01192 | -0.06327 | -0.01033 | -0.04170 | -0.01457 | -0.03945 |
| | (0.01599) | (0.03840) | (0.01592) | (0.03196) | (0.01925) | (0.03185) |
| Observations | 249 | 249 | 249 | 249 | 231 | 231 |
| R-squared | 0.02489 | 0.24135 | 0.02607 | 0.22580 | 0.02427 | 0.23912 |
| Number of PERMNO | | 221 | | 221 | | 205 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

### *V.3.3.2 CAR3*

Table 7 displays the results for the regressions of the individual measures of CEO narcissism, the remaining independent variables and all the control variables on the dependent variable CAR3MM.

The main insight of this table is that CEO narcissism is the most crucial variable for predicting the CAR3. While NM3 is significant for both OLS and FE, NM2 is only significant for the latter. Correlations between NM2 and unobserved firm effects are an explanation for this phenomenon. The significant positive coefficient of NM2 and NM3 states that CEOs with stronger narcissistic tendencies attain higher stock market returns.

None of the remaining explanatory variables is significant at any level, fostering the notion of CEO narcissism as the elementary variable to predict the cumulative abnormal return for the given event

window. The usage of the market-adjusted model instead of the market model does not produce significantly different results. For FE estimation, the explanatory variables explain between 18% to 28% of the variance in the dependent variable.

**Table 7:** OLS and FE estimation of the individual narcissism measures on CAR3

| MODLES | (12.1) CAR3MM | (12.2) CAR3MM | (13.1) CAR3MM | (13.2) CAR3MM | (14.1) CAR3MM | (14.2) CAR3MM |
|---|---|---|---|---|---|---|
| Age | -0.00042 | 0.00055 | -0.00032 | 0.00031 | -0.00022 | 0.00027 |
| | (0.00048) | (0.00086) | (0.00048) | (0.00087) | (0.00049) | (0.00085) |
| Gender | 0.00377 | -0.02061 | 0.00562 | -0.01244 | 0.00976 | -0.04146 |
| | (0.00758) | (0.03987) | (0.00736) | (0.03871) | (0.00704) | (0.03185) |
| CoB | -0.00127 | -0.01590 | -0.00075 | -0.00687 | -0.00260 | -0.00394 |
| | (0.00706) | (0.01810) | (0.00678) | (0.01562) | (0.00729) | (0.01671) |
| EMP | 0.00000 | -0.00032 | 0.00001 | -0.00047 | 0.00001 | -0.00046 |
| | (0.00001) | (0.00043) | (0.00001) | (0.00040) | (0.00001) | (0.00042) |
| IOn | 0.00553 | -0.01312 | 0.00574 | -0.01057 | 0.01737 | 0.00201 |
| | (0.01435) | (0.02564) | (0.01462) | (0.02462) | (0.02135) | (0.03043) |
| PerfM | 0.00166 | -0.00178 | 0.00112 | -0.00018 | -0.00005 | -0.00154 |
| | (0.00436) | (0.00704) | (0.00418) | (0.00678) | (0.00472) | (0.00690) |
| NM1 | 0.00315 | 0.01144 | | | | |
| | (0.00270) | (0.00813) | | | | |
| NM2 | | | 0.04932 | 0.38329** | | |
| | | | (0.03546) | (0.18217) | | |
| NM3 | | | | | 0.00468** | 0.00848*** |
| | | | | | (0.00181) | (0.00302) |
| Constant | 0.01039 | -0.01249 | 0.00864 | 0.01469 | -0.01481 | 0.00350 |
| | (0.03168) | (0.05460) | (0.03181) | (0.04511) | (0.03552) | (0.04607) |
| Observations | 249 | 249 | 249 | 249 | 231 | 231 |
| R-squared | 0.01430 | 0.18695 | 0.01499 | 0.20362 | 0.02691 | 0.28599 |
| Number of PERMNO | | 221 | | 221 | | 205 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

### *V.3.3.3 CAR7*

Table 8 shows the results of the same regressions as in table 6 and 7, but with CAR7MM as the dependent variable. Broadening the event window yields a significant coefficient for NM1 for model 15.1. Because the corresponding FE regression shows an insignificant coefficient for NM1, it must be assumed that OLS is biased due to correlation with the error term. The coefficients of NM2 and NM2

are significant and positive at a 0.1 level, meaning that higher narcissistic tendencies are appreciated by the stock market.

**Table 8:** OLS and FE estimation of the individual narcissism measures on CAR7

| MODELS | (15.1) CAR7MM | (15.2) CAR7MM | (16.1) CAR7MM | (16.2) CAR7MM | (17.1) CAR7MM | (17.2) CAR7MM |
|---|---|---|---|---|---|---|
| Age | -0.00051 | 0.00013 | -0.00032 | -0.00013 | -0.00046 | 0.00002 |
| | (0.00059) | (0.00100) | (0.00061) | (0.00099) | (0.00063) | (0.00104) |
| Gender | 0.00565 | -0.00238 | 0.00895 | 0.00382 | 0.00887 | -0.02796 |
| | (0.01212) | (0.05063) | (0.01183) | (0.04921) | (0.01247) | (0.03970) |
| CoB | -0.00698 | -0.02089 | -0.00558 | -0.01222 | -0.00606 | -0.00885 |
| | (0.01003) | (0.01734) | (0.00968) | (0.01050) | (0.01054) | (0.01203) |
| EMP | 0.00002** | -0.00042 | 0.00002*** | -0.00057** | 0.00002*** | -0.00055 |
| | (0.00001) | (0.00039) | (0.00001) | (0.00029) | (0.00001) | (0.00034) |
| IOn | 0.01297 | -0.00005 | 0.01356 | 0.00028 | 0.03034 | 0.01102 |
| | (0.02020) | (0.03492) | (0.02060) | (0.03276) | (0.02919) | (0.04312) |
| PerfM | 0.00674* | 0.00173 | 0.00588 | 0.00305 | 0.00404 | 0.00096 |
| | (0.00372) | (0.00567) | (0.00374) | (0.00417) | (0.00440) | (0.00473) |
| NM1 | 0.00667* | 0.01091 | | | | |
| | (0.00356) | (0.01600) | | | | |
| NM2 | | | 0.07610 | 0.60236* | | |
| | | | (0.05147) | (0.35953) | | |
| NM3 | | | | | 0.00606*** | 0.00782* |
| | | | | | (0.00227) | (0.00432) |
| Constant | 0.00089 | 0.00763 | -0.00057 | 0.02833 | -0.01791 | 0.01725 |
| | (0.04216) | (0.06515) | (0.04269) | (0.05128) | (0.04957) | (0.05952) |
| Observations | 249 | 249 | 249 | 249 | 231 | 231 |
| R-squared | 0.04397 | 0.13651 | 0.03858 | 0.20072 | 0.04605 | 0.19991 |
| Number of PERMNO | | 221 | | 221 | | 205 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In comparison to the previous analysis of the CAR3, firm size plays an important role in the investor's assessment of the CEO announcement for the dependent variable CAR7. While its significant effect in models 15.1 and 17.1 is not supported by the corresponding fixed effects estimation, model 16 shows a positive impact for OLS and a negative for FE. Since the net effect of model 16.2 is negative, the OLS estimation might be biased and, hence, irrelevant for further interpretation. Nevertheless, the negative coefficient of model 16.2 indicates that larger corporations yield lower returns. This effect is

only visible in combination with NM2. The effect of PerfM is negligible because none of the fixed effects estimation shows any significance and OLS estimates might be biased.

While the stock market exclusively considers CEO narcissism to evaluate the announcement at the 3-day event window, firm characteristics in the form of corporate size are included as well for the 7-day event window.

#### *V.3.3.4 CAR21*

Models 18 to 20 show the effect of NM1, NM2 and NM3 on the dependent variable CAR21MM. The other explanatory variables are included as well. Narcissism as the pivotal variable of this thesis, only affects the cumulative abnormal return through NM1 and NM2. The effect of NM2 is significant and positive, meaning that a more narcissistic CEO increases the stock market return. The impact of NM1, in contrast, must be challenged because the FE estimation does not yield an insignificant effect for the same model. The remaining measure NM3 is not significant. The coefficients of corporate size show the same pattern as with CAR7MM. While OLS produces a positive effect, FE indicates a negative net effect for an increase in size. While the influence of Gender is positive for the DV CAR1MM, its effect turns when extending the event window to 21 days, meaning that females yield higher returns. Apparently, the stock market alters its assessment of a female CEO since the coefficients for all FE estimations are significant at a 0.01 level. However, the small sample size of female CEOs as well as a rather broad event window impugns the validity of this result. An increase in corporate size reduces the cumulative abnormal return, as shown by models 19.2 and 20.2. The corresponding OLS estimations are assumed to be biased since its estimations contradict the results of FE.

The R-square within always exceeds 40% of FE estimation, stating that almost half of the variation in the dependent variable is explained by the explanatory variables. At this stage, CEO characteristics appear to be more important to the investor's assessment than firm characteristics.

**Table 9:** OLS and FE estimation of the individual narcissism measures on CAR21

| MODELS | (18.1) CAR21MM | (18.2) CAR21MM | (19.1) CAR21MM | (19.2) CAR21MM | (20.1) CAR21MM | (20.2) CAR21MM |
|---|---|---|---|---|---|---|
| Age | 0.00046 | 0.00082 | 0.00078 | 0.00016 | 0.00033 | 0.00077 |
| | (0.00096) | (0.00158) | (0.00099) | (0.00147) | (0.00103) | (0.00146) |
| Gender | -0.00398 | 0.21494*** | 0.00196 | 0.23494*** | 0.00195 | 0.21578*** |
| | (0.01651) | (0.05460) | (0.01635) | (0.04953) | (0.01798) | (0.04646) |
| CoB | -0.02705 | -0.07451 | -0.02512 | -0.05078 | -0.02511 | -0.04676 |
| | (0.01684) | (0.04806) | (0.01606) | (0.03923) | (0.01760) | (0.04094) |
| EMP | 0.00003** | -0.00090 | 0.00004** | -0.00130** | 0.00004** | -0.00129* |
| | (0.00002) | (0.00070) | (0.00002) | (0.00056) | (0.00002) | (0.00069) |
| IOn | 0.02273 | 0.03868 | 0.02354 | 0.04349 | 0.04824 | 0.02388 |
| | (0.03341) | (0.03209) | (0.03424) | (0.02683) | (0.04845) | (0.02445) |
| PerfM | -0.00156 | -0.01041 | -0.00324 | -0.00640 | -0.00527 | -0.00609 |
| | (0.00781) | (0.01508) | (0.00729) | (0.01249) | (0.00818) | (0.01239) |
| NM1 | 0.01070* | 0.02998 | | | | |
| | (0.00629) | (0.02090) | | | | |
| NM2 | | | 0.15162* | 1.21531** | | |
| | | | (0.09066) | (0.47793) | | |
| NM3 | | | | | 0.00765 | -0.00255 |
| | | | | | (0.00502) | (0.00527) |
| Constant | -0.06038 | -0.05686 | -0.06507 | 0.00971 | -0.07204 | 0.04611 |
| | (0.07046) | (0.11082) | (0.07118) | (0.07905) | (0.08738) | (0.09150) |
| Observations | 249 | 249 | 249 | 249 | 231 | 231 |
| R-squared | 0.03380 | 0.41775 | 0.03284 | 0.47303 | 0.03090 | 0.40078 |
| Number of PERMNO | | 221 | | 221 | | 205 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

### V.3.4 Interaction between CEO narcissism and other explanatory variables

The last chapter of the empirical analysis conducted in this thesis tries to shed further light on the impact of CEO narcissism by including interaction terms. To compute the interaction terms the variable NMIndex is multiplied with a moderator variable. For this thesis, interaction terms were computed for the moderators age (NMIAge), pre-succession performance (NMIPerf), corporate size (NMIEMP) and successor origin (NMIIOn). Due to the coding of the explanatory variable, the interaction term either consists of two continuous variables (e.g. NMIPerf) or a continuous variable and a binary variable (e.g. NMIAge). The remaining measures are not included due to either omission during the regression or lack of insights. Based on the incorporation of an interaction term the effect of NMIndex changes to coefficient of NMIndex plus the coefficient of the interaction term times the value of the explanatory variable, which NMIndex is interacted with. The objective is to observe the

impact of CEO narcissism conditional on a certain set of moderator variables. Therefore, the following tables are compared to Table 5, which constitutes the main table to assess the validity of the proposed hypotheses.

#### *V.3.4.1 CAR1*

Table 10 provides the OLS and FE estimation for the same set of variables as in table 5 but additional includes an interaction term for each model. In the first place, it should be stated that the inclusion of interaction terms only produces significant results for FE estimation, thereby revealing the net effect of each variable. Regarding the DV CAR1 the findings are in line with those of table 5. NMIndex is insignificant for all models. However, the integration of the interaction term of CEO narcissism and corporate size, namely NMIEMP, yields a significant negative coefficient for the interaction term. This means that higher narcissistic tendencies in CEOs produce a decrease in the stock market return for larger pre-succession performance as well as Gender have a negative influence on the stock market reaction. This is consistent with the findings of Table 5. The application of the market-adjusted model does not provide any additional insight. The explanatory power of each FE estimation is around 25 percent.

**Table 10:** OLS and FE estimation of the interaction terms on CAR1

| MODELS | (21.1) CAR1MM | (21.2) CAR1MM | (22.1) CAR1MM | (22.2) CAR1MM | (23.1) CAR1MM | (23.2) CAR1MM | (24.1) CAR1MM | (24.2) CAR1MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00016 | 0.00092 | 0.00016 | 0.00114 | 0.00016 | 0.00090 | 0.00018 | 0.00093 |
| | (0.00028) | (0.00068) | (0.00027) | (0.00089) | (0.00027) | (0.00068) | (0.00027) | (0.00074) |
| Gender | 0.00421 | -0.07517** | 0.00428 | -0.06676*** | 0.00437 | -0.06736** | 0.00431 | -0.07247** |
| | (0.00488) | (0.03345) | (0.00484) | (0.02461) | (0.00488) | (0.03322) | (0.00497) | (0.03166) |
| CoB | 0.00013 | 0.00150 | 0.00007 | -0.00116 | 0.00008 | -0.00288 | 0.00005 | -0.00473 |
| | (0.00327) | (0.00990) | (0.00323) | (0.01093) | (0.00322) | (0.00921) | (0.00322) | (0.01034) |
| EMP | -0.00000 | -0.00012 | -0.00000 | 0.00008 | -0.00000 | 0.00004 | -0.00000 | 0.00007 |
| | (0.00001) | (0.00010) | (0.00000) | (0.00015) | (0.00000) | (0.00014) | (0.00000) | (0.00016) |
| IOn | 0.00865 | -0.00620 | 0.00887 | -0.01113 | 0.00873 | -0.00884 | 0.01447 | -0.01268 |
| | (0.00965) | (0.02326) | (0.00971) | (0.02579) | (0.00966) | (0.02208) | (0.01422) | (0.03881) |
| PerfM | -0.00262 | -0.01158*** | -0.00262 | -0.01178*** | -0.00265 | -0.01156*** | -0.00275 | -0.01086*** |
| | (0.00207) | (0.00302) | (0.00206) | (0.00357) | (0.00199) | (0.00273) | (0.00208) | (0.00297) |
| NMIndex | -0.00214 | 0.00864 | 0.01222 | -0.07675 | -0.00175 | 0.00213 | 0.00149 | 0.00152 |
| | (0.00248) | (0.01268) | (0.02477) | (0.10612) | (0.00235) | (0.01315) | (0.00528) | (0.01641) |
| NMIEMP | 0.00001 | -0.00005** | | | | | | |
| | (0.00001) | (0.00002) | | | | | | |
| NMIAge | | | -0.00025 | 0.00141 | | | | |
| | | | (0.00042) | (0.00179) | | | | |
| NMIPerf | | | | | 0.00025 | -0.01437 | | |
| | | | | | (0.00362) | (0.02046) | | |
| NMIIOn | | | | | | | -0.00352 | 0.00385 |
| | | | | | | | (0.00445) | (0.01784) |
| Constant | -0.01702 | -0.03318 | -0.01727 | -0.05611 | -0.01764 | -0.04039 | -0.01865 | -0.04518 |
| | (0.01763) | (0.03073) | (0.01740) | (0.04231) | (0.01745) | (0.03309) | (0.01779) | (0.03815) |
| Observations | 231 | 231 | 231 | 231 | 231 | 231 | 231 | 231 |
| R-squared | 0.02524 | 0.27894 | 0.02593 | 0.26327 | 0.02474 | 0.25263 | 0.02754 | 0.24553 |
| Number of PERMNO | | 205 | | 205 | | 205 | | 205 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

### *V.3.4.2 CAR3*

The regression shown in Table 11 uses the 3-days cumulative abnormal return as the dependent variable, and the whole set of explanatory variables and interaction terms to predict the dependent variable. Aside from model 26 and 27, the effect of CEO narcissism is significant and positive for every fixed effects estimation. Most of the corresponding OLS estimations depict the same impact. Only model 27 shows a significant coefficient for OLS but not for FE. The inclusion of NMIEMP in model 25.2 additional produces a significant and negative effect for the interaction term. Therefore, the overall influence of CEO narcissism in this model is positive at first but starts decreasing when the corporation gets larger. The negative effect of corporate size is also displayed by the negative coefficient of the corresponding variable EMP. Compared to table 5, incorporating NMIPerf in model 27 erodes the significance of NMIndex but produces a significant coefficient for the interaction term. The sign of this coefficient indicates that higher levels of CEO narcissism negatively influence the stock market reactions when pre-succession performance was better. The two remaining interaction terms, NMIAge and NMIIOn, are not significant. However, the inclusion of the first in model 26 results in an insignificant effect for NMIndex but a significant negative effect of Gender. Adding NMIIOn to the regression, in contrast, preserves the positive influence of CEO narcissism as shown in model 28.

Overall, the perception that CEO narcissism is the most crucial variable to predict this cumulative abnormal return persists. The explanatory power of all the fixed estimation is rather strong with an 'R-square within' larger than 28% for all the models.

**Table 11** OLS and FE estimation of the interaction terms on CAR3

| MODELS | (25.1) CAR3MM | (25.2) CAR3MM | (26.1) CAR3MM | (26.2) CAR3MM | (27.1) CAR3MM | (27.2) CAR3MM | (28.1) CAR3MM | (28.2) CAR3MM |
|---|---|---|---|---|---|---|---|---|
| Age | -0.00023 | 0.00055 | -0.00026 | 0.00011 | -0.00028 | 0.00052 | -0.00023 | 0.00016 |
| | (0.00050) | (0.00065) | (0.00049) | (0.00119) | (0.00051) | (0.00070) | (0.00050) | (0.00079) |
| Gender | 0.00986 | -0.04823 | 0.00941 | -0.04698* | 0.00949 | -0.01100 | 0.00928 | -0.03879 |
| | (0.00717) | (0.03314) | (0.00710) | (0.02626) | (0.00716) | (0.03142) | (0.00735) | (0.03078) |
| CoB | -0.00395 | 0.00537 | -0.00375 | -0.01568 | -0.00366 | -0.00887 | -0.00382 | -0.00077 |
| | (0.00775) | (0.01294) | (0.00766) | (0.01908) | (0.00765) | (0.01909) | (0.00762) | (0.01775) |
| EMP | 0.00001 | -0.00095*** | 0.00001 | -0.00037 | 0.00001 | -0.00040 | 0.00001 | -0.00051 |
| | (0.00001) | (0.00024) | (0.00001) | (0.00036) | (0.00001) | (0.00038) | (0.00001) | (0.00034) |
| IOn | 0.00803 | -0.00900 | 0.00789 | -0.00585 | 0.00810 | -0.02182 | 0.02399 | 0.04170 |
| | (0.01967) | (0.02828) | (0.01968) | (0.03293) | (0.01964) | (0.02260) | (0.02881) | (0.04878) |
| PerfM | 0.00038 | -0.00494 | 0.00053 | -0.00090 | 0.00074 | -0.00629 | 0.00029 | -0.00195 |
| | (0.00462) | (0.00502) | (0.00462) | (0.00699) | (0.00431) | (0.00549) | (0.00477) | (0.00909) |
| NMIndex | 0.01347** | 0.04047*** | 0.01414 | 0.14404 | 0.01213** | 0.01262 | 0.02133** | 0.05667** |
| | (0.00568) | (0.01153) | (0.05121) | (0.15119) | (0.00511) | (0.00997) | (0.01005) | (0.02259) |
| NMIEMP | -0.00002 | -0.00017*** | | | | | | |
| | (0.00003) | (0.00003) | | | | | | |
| NMIAge | | | -0.00003 | -0.00203 | | | | |
| | | | (0.00091) | (0.00254) | | | | |
| NMIPerf | | | | | 0.00362 | -0.07783*** | | |
| | | | | | (0.00899) | (0.02700) | | |
| NMIIOn | | | | | | | -0.00986 | -0.03629 |
| | | | | | | | (0.00773) | (0.02546) |
| Constant | 0.00432 | 0.04779 | 0.00632 | 0.03589 | 0.00686 | 0.02591 | 0.00355 | 0.04353 |
| | (0.03526) | (0.02913) | (0.03417) | (0.05575) | (0.03489) | (0.03956) | (0.03513) | (0.04347) |
| Observations | 231 | 231 | 231 | 231 | 231 | 231 | 231 | 231 |
| R-squared | 0.03576 | 0.46457 | 0.03459 | 0.28069 | 0.03511 | 0.38052 | 0.04039 | 0.32623 |
| Number of PERMNO | | 205 | | 205 | | 205 | | 205 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

### *V.3.4.3 CAR7*

Table 12 shows that CEO narcissism is significant for models 29, 31 and 32, though the first two models only report significance for the OLS estimation, which might be biased since the corresponding FE estimation shows a neutral net effect. Model 32, which includes the interaction term NMIIOn, depicts a significant positive effect of CEO narcissism for OLS and FE though. The interaction term is significant as well and states that higher narcissistic tendencies lead to a decrease in stock market returns, if the CEO is an insider. Nevertheless, the decrease in the stock market reactions to the announcement of a narcissistic insider does not offset the overall positive impact of CEO narcissism. Moreover, the announcement of a new CEO in larger corporations yields lower stock market returns as indicated by models 31.2 and 32.2. The remaining significant coefficients for corporate size are based on OLS estimates and might be biases due to correlation with the error term. The application of the market-adjusted model instead of the market model does not provide any additional insights. The explanatory power of the fixed effects estimations ranges from 17 percent to 35 percent.

**Table 12:** OLS and FE estimation of the interaction terms on CAR7

| MODELS | (29.1) CAR7MM | (29.2) CAR7MM | (30.1) CAR7MM | (30.2) CAR7MM | (31.1) CAR7MM | (31.2) CAR7MM | (32.1) CAR7MM | (32.2) CAR7MM |
|---|---|---|---|---|---|---|---|---|
| Age | -0.00048 | 0.00022 | -0.00050 | 0.00013 | -0.00048 | 0.00025 | -0.00048 | -0.00042 |
| | (0.00063) | (0.00092) | (0.00061) | (0.00124) | (0.00062) | (0.00081) | (0.00062) | (0.00088) |
| Gender | 0.00932 | -0.02402 | 0.00879 | -0.02428 | 0.00848 | 0.00219 | 0.00849 | -0.02268 |
| | (0.01302) | (0.04513) | (0.01298) | (0.03826) | (0.01282) | (0.04653) | (0.01314) | (0.03862) |
| CoB | -0.00855 | -0.01247 | -0.00826 | -0.01584 | -0.00848 | -0.01210 | -0.00832 | 0.00810 |
| | (0.01103) | (0.01557) | (0.01093) | (0.01534) | (0.01091) | (0.01698) | (0.01088) | (0.01471) |
| EMP | 0.00003* | -0.00055 | 0.00002*** | -0.00047 | 0.00002*** | -0.00052* | 0.00002** | -0.00081*** |
| | (0.00001) | (0.00044) | (0.00001) | (0.00035) | (0.00001) | (0.00031) | (0.00001) | (0.00024) |
| IOn | 0.01873 | -0.00253 | 0.01820 | -0.00173 | 0.01791 | -0.01190 | 0.03474 | 0.10505 |
| | (0.02763) | (0.03723) | (0.02766) | (0.04337) | (0.02751) | (0.03200) | (0.03866) | (0.05876) |
| PerfM | 0.00435 | 0.00030 | 0.00451 | 0.00099 | 0.00410 | -0.00288 | 0.00434 | 0.00135 |
| | (0.00439) | (0.00487) | (0.00433) | (0.00534) | (0.00445) | (0.00903) | (0.00441) | (0.00606) |
| NMIndex | 0.02115*** | 0.02160 | -0.00475 | 0.04367 | 0.01970*** | 0.00699 | 0.02844** | 0.08016*** |
| | (0.00743) | (0.01863) | (0.06106) | (0.20116) | (0.00651) | (0.01662) | (0.01270) | (0.02580) |
| NMIEMP | -0.00003 | -0.00003 | | | | | | |
| | (0.00004) | (0.00006) | | | | | | |
| NMIAge | | | 0.00042 | -0.00042 | | | | |
| | | | (0.00107) | (0.00350) | | | | |
| NMIPerf | | | | | -0.00846 | -0.06952 | | |
| | | | | | (0.00836) | (0.05239) | | |
| NMIIOn | | | | | | | -0.00995 | -0.07326*** |
| | | | | | | | (0.01025) | (0.02418) |
| Constant | 0.00642 | 0.03563 | 0.00873 | 0.03491 | 0.00804 | 0.03975 | 0.00669 | 0.08658* |
| | (0.04810) | (0.05536) | (0.04631) | (0.06360) | (0.04666) | (0.04465) | (0.04758) | (0.04751) |
| Observations | 231 | 231 | 231 | 231 | 231 | 231 | 231 | 231 |
| R-squared | 0.06534 | 0.17248 | 0.06435 | 0.16982 | 0.06537 | 0.23419 | 0.06699 | 0.34899 |
| Number of PERMNO | | 205 | | 205 | | 205 | | 205 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

### *V.3.4.4 CAR21*

Table 13 consists of the models 33 to 36, each containing the complete set of explanatory variables and one interaction term. The FE estimation of the first model shows no significant effect of CEO narcissism, a significant negative impact of corporate size, a significant negative effect of the interaction term of both variables as well as a positive impact of Gender. Hence, higher narcissistic tendencies decrease stock market returns when firms get larger. The corresponding OLS estimation reports a positive impact of the individual measure of CEO narcissism and firm size, but since the net effect is negligible or negative respectively, OLS might be biased.

While both model 34.1 reports a positive impact of firm size on the dependent variable, the corresponding FE estimation, model, 32.2 displays an insignificant net effect of firm size and positive net effect of Gender. The OLS estimation of model 35.1 expresses a positive effect for CEO narcissism, though this effect might be biased since the net effect of model 35.2 is insignificant. Furthermore, Model 35.2 presents a significant and negative effect of firm size and a positive impact of Gender for the FE estimation. This means that female CEOs yield lower stock market returns and larger corporations yield lower returns, which is in line with previous findings. Additionally, the OLS estimation 35.2 displays a positive effect of CEO narcissism, which, however, might be biased due to correlations between CEO narcissism and the unobserved and time invariant firm effects. Model 36 shows the same effect for size, gender and narcissism as model 35. None of the interaction terms significantly impacts the dependent model, expect NMIEMP. The application of the market-adjusted model yields comparable results. The explanatory power of the FE estimation ranges from 43 percent to 48 percent and always exceeds the explanatory power of OLS.

**Table 13:** OLS and FE estimation of the interaction terms on CAR21

| MODELS | (33.1) CAR21MM | (33.2) CAR21MM | (34.1) CAR21MM | (34.2) CAR21MM | (35.1) CAR21MM | (35.2) CAR21MM | (36.1) CAR21MM | (36.2) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00037 | 0.00078 | 0.00018 | 0.00214 | 0.00017 | 0.00074 | 0.00032 | 0.00031 |
| | (0.00104) | (0.00151) | (0.00100) | (0.00205) | (0.00101) | (0.00155) | (0.00103) | (0.00146) |
| Gender | 0.00413 | 0.18676*** | 0.00156 | 0.23125*** | 0.00246 | 0.22809*** | 0.00184 | 0.19754*** |
| | (0.01923) | (0.06848) | (0.01914) | (0.03453) | (0.01965) | (0.05830) | (0.01924) | (0.07110) |
| CoB | -0.03051* | -0.03259 | -0.02962 | -0.03889 | -0.02925 | -0.04900 | -0.02979* | -0.03895 |
| | (0.01825) | (0.03463) | (0.01806) | (0.03702) | (0.01809) | (0.04714) | (0.01801) | (0.04278) |
| EMP | 0.00005** | -0.00188*** | 0.00004** | -0.00103 | 0.00004** | -0.00125* | 0.00004** | -0.00138** |
| | (0.00002) | (0.00065) | (0.00002) | (0.00080) | (0.00002) | (0.00066) | (0.00002) | (0.00059) |
| IOn | 0.03512 | 0.03863 | 0.03546 | 0.01109 | 0.03535 | 0.02441 | 0.06915 | 0.09955 |
| | (0.04553) | (0.03219) | (0.04561) | (0.02678) | (0.04562) | (0.03102) | (0.06509) | (0.07136) |
| PerfM | -0.00579 | -0.01150 | -0.00482 | -0.01408 | -0.00426 | -0.01287 | -0.00564 | -0.00807 |
| | (0.00856) | (0.01182) | (0.00851) | (0.01508) | (0.00805) | (0.01474) | (0.00872) | (0.01495) |
| NMIndex | 0.03824*** | 0.03851 | 0.13335 | -0.45687 | 0.03228*** | 0.00731 | 0.05245** | 0.05872 |
| | (0.01239) | (0.03732) | (0.11579) | (0.29450) | (0.01137) | (0.02885) | (0.02179) | (0.06880) |
| NMIEMP | -0.00010 | -0.00020* | | | | | | |
| | (0.00007) | (0.00011) | | | | | | |
| NMIAge | | | -0.00177 | 0.00830 | | | | |
| | | | (0.00201) | (0.00525) | | | | |
| NMIPerf | | | | | 0.01508 | -0.08555 | | |
| | | | | | (0.02087) | (0.07994) | | |
| NMIIOn | | | | | | | -0.02129 | -0.04350 |
| | | | | | | | (0.01794) | (0.04967) |
| Constant | -0.04613 | 0.06604 | -0.03447 | -0.05205 | -0.03492 | 0.04064 | -0.04325 | 0.06275 |
| | (0.08075) | (0.07881) | (0.07806) | (0.12372) | (0.07885) | (0.08381) | (0.08085) | (0.08035) |
| Observations | 231 | 231 | 231 | 231 | 231 | 231 | 231 | 231 |
| R-squared | 0.06071 | 0.46348 | 0.05938 | 0.47320 | 0.05805 | 0.43908 | 0.06135 | 0.42881 |
| Number of PERMNO | | 205 | | 205 | | 205 | | 205 |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

# VI Discussion & Conclusion

## VI.1 What determines market reaction to CEO announcements?

Until now no clear set of determinants has emerged to this apparently simple question. A thorough statistical and empirical analysis of the question was conducted in order propose a set of determinants and shed light on the impact of CEO narcissism and the other explanatory variables.

Based on a comprehensive literature review, successor origin and pre-succession performance emerged as promising predictors of the stock market reactions to CEO announcements. Yet, scholars were unable to finally assess the impact and the direction of the relationship between these variables and the stock market reactions for decades. The presence and persistence of mixed findings constitutes just one reason to further shed light on a fragmented and still poorly illuminated research field. The proposition and evaluation of another influential determinant, namely CEO narcissisms, constitutes the justification of this thesis. Research has shown that narcissism is a pivotal personality trait for CEOs that helps them to obtain the CEO position (Rosenthal and Pittinsky, 2006) and shapes their decision making (Chatterjee and Hambrick, 2007).

The results summarized in this chapter do not claim to provide a universally valid set of determinants of market reactions to CEO announcements but to propose an, until now, unobserved though influential determinant. To assess the impact of CEO narcissism ordinary least squared and fixed effects regressions of various variables are applied on a variety of cumulative abnormal returns. Moreover, event study methodology is used to test if the stock market shows a significant response at all. Based on three potential determinants and the general question if stock markets react to the announcement, four hypotheses were proposed. Their validity was statistically tested in Chapter V and is verbalized in the following paragraphs.

Prior to the assessment of the determinants of market reactions to CEO announcements, an analysis to clarify whether the stock market responds to the CEO announcement was conducted. The application of event study methodology in combination with various event windows, estimation windows and gaps did not yield significant results. Therefore, the cumulative abnormal returns are statistically indistinguishable from zero and Hypothesis 1 must be rejected. Despite the disruptive

nature of a CEO succession (Grusky, 1960), stock markets do not show abnormal performance around the announcement date. This finding supports the 'scapegoating' theory as articulated by Gamson and Scotch (1964) and is in accordance with previous studies (Reinganum, 1985; Worrell *et al.*, 1986; Beatty and Zajac, 1987; Warner, Watts and Wruck, 1988; Boeker, 1992; Denis and Denis, 1995). The absence of a market reactions, though, does not mean that the endeavor to ascertain the determinants of market reactions is superfluous. In contrast, since the dependent variables express a cross-sectional mean, it might well be that certain corporations experience abnormal performance, while others don't. On average, however, there is no significant reaction to the CEO announcement. A reason for this phenomenon might be that rumors about the CEO transition are spread long before the transition takes place. Because it is assumed that the stock market price of a given company rapidly incorporates all the information about the corporation (Fama *et al.*, 1969), the potential peak caused by the spreading of certain rumors might not be visible at the announcement day anymore.

The second hypothesis sets CEO narcissism and the stock market reactions in relation by claiming that stronger narcissistic tendencies in CEOs provoke positive stock market reactions. A multitude of event windows, measures of CEO narcissism and different estimation models of the dependent variables are used to ascertain the robustness and validity of the influence. As a result, it can be stated that Hypothesis 1 is supported because CEO narcissism has a significant and positive impact on the market reactions. This relation, however, is bound to certain conditions. An in-depth analysis of the impact sheds light on these conditions and the circumstance under which narcissism decreases the stock market reactions.

Firstly, the selection of the event window defining the dependent variable is crucial to observe the effect of CEO narcissism. While, the stock market does not react to the level of CEO narcissism at the announcement date, it rewards narcissistic tendencies in CEOs for the remaining event windows. The highly significant and positive effect of CEO narcissism on the 3-day cumulative abnormal return CAR3, and the partially significant effect on the remaining dependent variables CAR7 and CAR21 strongly supports Hypothesis 1. Due to this observation, it is assumed that information about the narcissistic tendencies of the CEO reaches the investors either shortly before or after the announcement. The announcement of the CEO itself, however does not convey any additional

important information about the CEO's level of narcissism. Moreover, the conclusion of Back, Schmukle and Egloff (2010) that narcissists are initially perceived positively by others is supported by the findings of this study. The rather short timeframe observed, even by the broadest event window, solely captures the first impression of the CEO around the announcement date. Therefore, the significance and positive impact of CEO narcissism determined in this study bolsters the findings of Back, Schmukle and Egloff (2010). The reversal of the positive first impression takes up to 7 weeks (Paulhus, 1998) and rest on a behavior that is characterized by hostility and arrogance (Colvin, Block and Funder, 1995).

Secondly, the evaluation of the individual measures of CEO narcissism indicates that the stock market reacts stronger to certain facets of narcissism. Under the assumption that the CEO's prominence in the company´s press releases (NM2) is an indicator for leadership and authority, and that the measure of relative pay (NM3) express the CEO's entitlement and superiority, it can be stated that these facets of narcissism are rewarded most by the stock market. Hence, the stock market appreciates the announcement of a strong and dominate corporate leader. The prominence of the CEO's photograph might represent his or her self-absorption, which is not valued by the stock market. Moreover, the usage of the individual measure of CEO narcissism disclosed the effect of narcissism on the cumulative abnormal return of the event windows encompassing 7 days and 21 days, whereas the application of the narcissism index did not yield significant results for these dependent variables. Hence, the solitary usage of the index measure underestimates the effect of CEO narcissism.

Thirdly, there are several conditions under which higher narcissistic tendencies have an adverse impact on the stock market. Three out of four dependent variables show a negative effect of the interaction term between CEO narcissism and corporate size. Hence, the statement, that higher narcissistic tendencies in CEOs yield a decrease in the stock market reactions for CEO transitions in larger corporation, receives strong support. Although, the direction of the influences appears to be counter-intuitive, it could be argued that larger corporation already face intensive news coverage and pressure through social media, due to which a self-absorbed CEO that seeks the spotlight is perceived more negatively. Smaller corporations, in contrast, strive for more media presence and, therefore value a narcissistic CEO. Another significant relationship was observed between CEO narcissism and pre-

succession performance. Regressions on the dependent variables CAR3 and CAR21 indicate that the announcement of a narcissistic CEO decreases stock market returns for well performing firms. As already outlined, narcissists are prone to bold and aggressive action (Chatterjee and Hambrick, 2007) that might be perceived as disruptive and inappropriate by the shareholders if the corporation previously performed well. The last interaction between CEO narcissism and another explanatory variable showing significant results is related to successor origin. For the dependent variable CAR7 the coefficient of this interaction term states that higher narcissistic tendencies in insiders result in a decrease of the stock market reactions. Since the interaction term is only significant for one dependent variable and successor origin itself has no impact on any dependent variable, the validity of the relationship needs to be challenged.

Lastly, a comparison between ordinary least square estimations and fixed effects estimations ascertains that CEO narcissism is correlated to unobserved and time invariant firm effects. Firm characteristics such as the organizational structure, the board composition or the reputation might be such time invariant firm effects that are correlated with CEO narcissism.

Regarding the second independent variable employed, successor origin, no consistent influence is found. Consequently, Hypothesis 3 must be rejected and successor origin is not a valid predictor of the market reactions to CEO announcements. This finding is supported by a study of Friedman and Singh (1989). Nonetheless, the significance of the interaction term between CEO narcissism and successor origin shows that under certain condition the effect of successor origin is quantifiable. In contrast, pre-succession performance has proven to be a valid predictor of the single-day cumulative abnormal return CAR1. Throughout the analysis, the net effect of pre-succession performance on the CAR1 is consistently negative, implicating that a better pre-succession performance decreases the cumulative abnormal return. Hence, Hypothesis 4 cannot be rejected. Due to the disruptive nature of the event (Grusky, 1960; Gamson and Scotch, 1964), the announcement of a new CEO might adversely affect the previously good performance of the corporation. The remaining dependent variable are not significantly influenced by pre-succession performance.

Finally, some of the control variables qualified as predictors for the market reaction as well. The announcement of a female CEO decreases the market reaction for the dependent variable CAR1

but increases the market reaction for the dependent variable CAR21. The small sample size of female CEOs, however, biases the results. To finally assess the validity of the impact of gender a larger sample size of female successors is needed. The second influential control variable is the size of the corporation. The application of fixed effects estimation revealed that for the 21-days event window the net effect of corporate size on the cumulative abnormal returns is negative, meaning that larger corporations yield lower stock market returns. Yet, this effect is not consistently observed for all the dependent variables.

In conclusion, the objective of this thesis, which is to determinate the factors the market reaction to CEO announcements, has been achieved. Based on the results of a comprehensive literature review and a sophisticated statistical analysis it can be stated that under certain conditions CEO narcissism functions as a predictor for market reactions to CEO announcements. Additionally, in some circumstances the corporation's pre-succession performance and size as well as the CEOs gender impacts the market reaction. While CEO narcissism has the strongest impact on the 3-days cumulative abnormal return, pre-succession performance best predicts the stock market reaction on the announcement date and successor origin has no impact at all. Therefore, the stock market reaction for different event windows is based on different determinants, among which CEO narcissism shows the most consistent impact.

Moreover, it can be stated that fixed effects estimation is superior to ordinary least squares estimation, when assessing the influence of the explanatory variables since it accounts for unobserved and time invariant firm effects, which might have an impact on the dependent variable as well.

## VI.2 One explanation for persistent mixed findings in management succession theory

The introduction of this thesis stated that until the mid-1990s there has been little conclusive evidence to finally answer the question that forms the basis of this thesis; 'what determines market reactions to CEO announcements'. First and foremost, this thesis is unable to provide a universal valid answer since the information assessed by the stock market within the shortest period of time can be immense. However, the analysis conducted in chapter V helps to shed light on the reasons why studies conducted during the 1980s and 1990 lacked comparability and, therefore, consistency in their results.

Overall, four main reasons were identified.

While the dependent variable of this thesis was deliberately divided into four event windows, each constituting a dependent variable of its own, many studies did not consider the effect of the length the event window on the cumulative abnormal return. This issue has already been addressed in chapter IV.1.2.3 and might contribute to the persistence of mixed findings. The fact that Table 5 presents a unique set of variables impacting the different dependent variables, strengthens the suspicion that the definition of the event window has an underestimated effect on the results of the analysis.

Moreover, previous studies not only diverged regarding the event window, but according to their measurement of key variables, as well. As already outlined, researchers have been highly inconsistent in defining the origin of the successor, pre-succession performance, and corporate size. Preliminary regressions to assess the robustness of the standardized and averaged measure of pre-succession performance (PerfM) employed in this thesis show that the impact of pre-succession performance dramatically depends on the accounting measure used. Meaning that the usage of RoE, RoA or RoS did not yield the same result. The combination with other explanatory variables even amplifies the effect (see Appendix VI for an example). The data and time periods used to construct measurements are another potential source of variation. Hence, the variation regarding the measurement of the independent variables from one paper to another constitutes another source of mixed findings.

The third reason for mixed findings across previous studies picks up the differences regarding the dependent variable and the independent variables and sets them in the context of methodology. Regression analysis, as well as any other statistical method to derive predictions about variables of interest, is highly sensitive to marginal changes. This issue not only encompasses the measurement of variables, but their quantity and the data on which they are based. As soon as researchers compare their results to others that might not be based on the same sources and measurements, a ceteris-paribus-analysis across the studies is impeded.

The pace of technological development during the last decades constitutes the fourth reason for inconsistency. Associated with a tremendous increase of information that is available and its

immediate evaluation, this process changes entire industries. Most information is directly absorbed by the stock market, hence affecting the stock market return for a given stock. Furthermore, changes in the macroeconomic and microeconomic environment might impact the stock market as a whole. This finally affects the dependent variables of this thesis.

In conclusion, it can be stated that there are many reasons why mixed findings shaped the management succession theory for decades and will probably continue to do so.

# VII Limitations

Throughout this thesis certain issues limited the depth, validity and scope of the analysis.

First and foremost, the availability and the accuracy of data collected on FACTIVA®, ExecuComp (via WRDS), and Compustat (via WRDS) constituted a challenged. The information and data available on Factiva® about the CEO's announcement date and the CEO's prominence in the company's press releases was often incomplete. This impeded the efficiency of the data collection. In this context, the exclusion of confounding events represented the most challenging task, especially for the event windows larger than three days (CAR7 & CAR21). The time period chosen to control for confounding events and strategic noise does not encompass the complete event windows CAR7 and CAR21, according to which the validity of the results could be challenged. Nevertheless, the time windows used to control for confounding events in this thesis matches the standards of the research field. Future research should incorporate larger time periods to control for confounding events to enhance the validity of the results. To overcome the routinely faced research issue of time frame selection (Lubatkin and Shrieves, 1986), this thesis deployed several event windows. Furthermore, the robustness of the cumulative abnormal returns was ascertained by the comparison of the market model to the market-adjusted model.

Secondly, the sample used in the analysis represents a research issues itself. As only the 500 largest companies are included, the overall sample is biased towards larger U.S corporations. Hence, the results presented in the previous chapter are only valid for large U.S. firms. Potentially different economic, cultural and social circumstance in the European or Asian markets, for instance, impede the

application of the results to these markets. Finally, the sample is not drawn randomly, which violates an assumption of OLS and FE.

Thirdly, the measurement of CEO narcissism and the correlation between these measurements needs to be addressed. From a psychological point of view the measures of CEO narcissism as proposed by Chatterjee and Hambrick (2007) seem dubious. Although, the unobtrusiveness of the measures facilitated the data collection and evaluation, the indirect measurement of a highly complex and psychometric dimension entails the risk of misjudgment and miscalculation of the narcissistic tendencies. Nonetheless, there exists no feasible alternative to these unobtrusive measures. Additionally, the unobtrusive and indirect measurement of CEO narcissism might entail other closely related personality traits and characteristics, such as power and ambition.

In order to overcome some of the issues and limitation this thesis faces and to additionally assess the robustness of the findings a replication of a comparable approach for the European and Asian market is proposed. Furthermore, the application of fixed effects estimation and thereby the incorporation of time invariant firm effects is suggested as primary tool for analyzing the market reactions to CEO announcements and the determinants shaping the cumulative abnormal return. Further elaboration on these time invariant firm effects might produce new insights on the relationship between CEO narcissism and the cumulative abnormal return. Finally, the event windows covered by this thesis only assess the immediate reaction of the stock market to CEO announcements, due to which the reversal of the impact of CEO narcissism is not observable. Future studies should extend the event window to test whether the effect of CEO narcissism alters over time.

The endeavor taken in this thesis to limit the bias of the results and to control for confounding events guarantees the validity of the presented results. Hence it can be stated that CEO narcissism is a qualified predictor of the market reactions to CEO announcements.

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# IX Appendices

**Appendix I:** Preliminary regression of IOn

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR3MM | (FE) CAR3MM | (OLS) CAR7MM | (FE) CAR7MM | (OLS) CAR21MM | (FE) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | -0.00004 | 0.00024 | -0.00032 | -0.00030 | 0.00059 | -0.00089 | 0.00086 | -0.00135 |
| | (0.00024) | (0.00052) | (0.00046) | (0.00072) | (0.00109) | (0.00102) | (0.00127) | (0.00193) |
| Gender | 0.00275 | -0.05070** | 0.00498 | 0.01061 | 0.00987 | 0.03289 | 0.00675 | 0.28398*** |
| | (0.00434) | (0.02505) | (0.00685) | (0.03623) | (0.01301) | (0.04782) | (0.01559) | (0.05960) |
| CoB | 0.00044 | 0.00641 | -0.00045 | -0.02580 | -0.00934 | -0.02791 | -0.02309 | -0.02801 |
| | (0.00274) | (0.01285) | (0.00592) | (0.02340) | (0.00981) | (0.01799) | (0.01481) | (0.04307) |
| EMP | -0.00000 | -0.00005 | 0.00001 | -0.00054 | 0.00003*** | -0.00064** | 0.00004** | -0.00146** |
| | (0.00000) | (0.00010) | (0.00001) | (0.00037) | (0.00001) | (0.00029) | (0.00002) | (0.00057) |
| IOn | 0.00620 | -0.00793 | 0.00708 | 0.00013 | -0.00289 | 0.01572 | -0.00570 | 0.05896* |
| | (0.00623) | (0.01844) | (0.01208) | (0.02515) | (0.02311) | (0.03322) | (0.03192) | (0.03114) |
| Constant | -0.00455 | -0.00353 | 0.00902 | 0.06327 | -0.03101 | 0.09021 | -0.03983 | 0.11738 |
| | (0.01483) | (0.02745) | (0.02964) | (0.04071) | (0.05276) | (0.05466) | (0.07374) | (0.10265) |
| Observations | 291 | 291 | 291 | 291 | 291 | 291 | 291 | 291 |
| R-squared | 0.01065 | 0.05879 | 0.00768 | 0.16221 | 0.01320 | 0.13196 | 0.01966 | 0.21593 |
| Number of PERMNO | | 252 | | 252 | | 252 | | 252 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix II:** Preliminary regression of IOb

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR3MM | (FE) CAR3MM | (OLS) CAR7MM | (FE) CAR7MM | (OLS) CAR21MM | (FE) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00005 | 0.00022 | -0.00026 | -0.00018 | 0.00051 | -0.00094 | 0.00103 | -0.00020 |
| | (0.00023) | (0.00046) | (0.00043) | (0.00071) | (0.00098) | (0.00102) | (0.00116) | (0.00157) |
| Gender | 0.00075 | -0.01445 | 0.00362 | 0.01485 | 0.01165 | 0.06007 | 0.01646 | 0.17354** |
| | (0.00431) | (0.02026) | (0.00672) | (0.03842) | (0.01246) | (0.04328) | (0.01634) | (0.07440) |
| CoB | -0.00091 | -0.00439 | -0.00376 | -0.04111** | -0.01087 | -0.04072** | -0.02094 | -0.06297* |
| | (0.00262) | (0.01197) | (0.00582) | (0.01946) | (0.00880) | (0.01586) | (0.01405) | (0.03524) |
| EMP | -0.00000 | -0.00003 | 0.00000 | -0.00049 | 0.00002** | -0.00062** | 0.00004** | -0.00131** |
| | (0.00000) | (0.00010) | (0.00001) | (0.00038) | (0.00001) | (0.00029) | (0.00002) | (0.00063) |
| IOb | 0.00964 | 0.00784 | 0.01304 | 0.03633 | -0.00297 | 0.05988 | -0.00615 | 0.06759*** |
| | (0.00601) | (0.01355) | (0.01228) | (0.02969) | (0.02427) | (0.03835) | (0.03354) | (0.02474) |
| Constant | -0.01180 | -0.01533 | 0.00479 | 0.02608 | -0.02479 | 0.05293 | -0.05210 | 0.04679 |
| | (0.01489) | (0.02874) | (0.02815) | (0.04032) | (0.04669) | (0.05575) | (0.06777) | (0.09248) |
| Observations | 334 | 334 | 334 | 334 | 334 | 334 | 334 | 334 |
| R-squared | 0.01738 | 0.02612 | 0.01023 | 0.17243 | 0.01358 | 0.17179 | 0.01711 | 0.18074 |
| Number of PERMNO | | 282 | | 282 | | 282 | | 282 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix III:** Preliminary regression of PerfM

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR3MM | (FE) CAR3MM | (OLS) CAR7MM | (FE) CAR7MM | (OLS) CAR21MM | (FE) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00012 | 0.00089 | -0.00029 | 0.00005 | -0.00049 | -0.00039 | 0.00045 | 0.00123 |
| | (0.00027) | (0.00061) | (0.00045) | (0.00077) | (0.00055) | (0.00094) | (0.00090) | (0.00138) |
| Gender | -0.00025 | -0.05619*** | 0.00501 | 0.01072 | 0.01050 | 0.01860 | 0.00948 | 0.17969*** |
| | (0.00501) | (0.01172) | (0.00714) | (0.01741) | (0.01209) | (0.02115) | (0.01689) | (0.02940) |
| CoB | -0.00001 | -0.02168** | -0.00201 | -0.03354** | -0.00621 | -0.03501** | -0.02148* | -0.08885*** |
| | (0.00272) | (0.01095) | (0.00529) | (0.01560) | (0.00733) | (0.01746) | (0.01212) | (0.03142) |
| EMP | -0.00000 | 0.00006 | 0.00001 | -0.00044 | 0.00002** | -0.00055 | 0.00004** | -0.00111 |
| | (0.00000) | (0.00014) | (0.00001) | (0.00042) | (0.00001) | (0.00035) | (0.00002) | (0.00074) |
| PerfM | -0.00186 | -0.00056 | -0.00346 | 0.01351 | 0.00219 | 0.02094* | -0.00220 | 0.01117 |
| | (0.00173) | (0.00613) | (0.00603) | (0.00839) | (0.00609) | (0.01152) | (0.00681) | (0.00934) |
| Constant | -0.00685 | -0.04217 | 0.01664 | 0.04071 | 0.02562 | 0.07066 | -0.02163 | 0.03108 |
| | (0.01449) | (0.03574) | (0.02516) | (0.05547) | (0.03094) | (0.06378) | (0.05046) | (0.09888) |
| Observations | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| R-squared | 0.00516 | 0.08951 | 0.00659 | 0.14947 | 0.01526 | 0.15376 | 0.01647 | 0.29610 |
| Number of PERMNO | | 250 | | 250 | | 250 | | 250 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix IV:** Preliminary regression of NMIndex

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR3MM | (FE) CAR3MM | (OLS) CAR7MM | (FE) CAR7MM | (OLS) CAR21MM | (FE) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00011 | 0.00042 | -0.00027 | 0.00013 | 0.00047 | -0.00029 | 0.00094 | -0.00022 |
| | (0.00024) | (0.00051) | (0.00044) | (0.00063) | (0.00105) | (0.00095) | (0.00120) | (0.00177) |
| Gender | 0.00168 | -0.04556*** | 0.00603 | -0.01401 | 0.01237 | -0.00884 | 0.01765 | 0.20821*** |
| | (0.00402) | (0.01463) | (0.00611) | (0.01774) | (0.01279) | (0.02673) | (0.01775) | (0.05390) |
| CoB | -0.00055 | -0.00570 | -0.00429 | -0.04426** | -0.01442 | -0.03611** | -0.02862** | -0.04590 |
| | (0.00266) | (0.01377) | (0.00557) | (0.02012) | (0.00967) | (0.01607) | (0.01303) | (0.04143) |
| EMP | -0.00000 | -0.00002 | 0.00000 | -0.00033 | 0.00003** | -0.00046 | 0.00004** | -0.00138** |
| | (0.00000) | (0.00013) | (0.00001) | (0.00039) | (0.00001) | (0.00033) | (0.00002) | (0.00068) |
| NMIndex | 0.00046 | -0.00119 | 0.00882 | 0.02042* | 0.01963*** | 0.01794 | 0.03713*** | -0.00734 |
| | (0.00242) | (0.00918) | (0.00578) | (0.01094) | (0.00566) | (0.01724) | (0.00996) | (0.03056) |
| Constant | -0.00598 | -0.01779 | 0.01756 | 0.03561 | -0.02374 | 0.06311 | -0.04940 | 0.10909 |
| | (0.01359) | (0.03179) | (0.02506) | (0.04655) | (0.05645) | (0.06281) | (0.06617) | (0.11409) |
| Observations | 310 | 310 | 310 | 310 | 310 | 310 | 310 | 310 |
| R-squared | 0.00149 | 0.03682 | 0.01409 | 0.15993 | 0.04023 | 0.10281 | 0.05420 | 0.17142 |
| Number of PERMNO | | 262 | | 262 | | 262 | | 262 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix V:** Table 10 with IOb instead of IOn

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR3MM | (FE) CAR3MM | (OLS) CAR7MM | (FE) CAR7MM | (OLS) CAR21MM | (FE) CAR21MM |
|---|---|---|---|---|---|---|---|---|
| Age | 0.00025 | 0.00093 | -0.00023 | 0.00003 | -0.00060 | -0.00051 | 0.00029 | 0.00104 |
| | (0.00028) | (0.00068) | (0.00048) | (0.00099) | (0.00058) | (0.00123) | (0.00094) | (0.00151) |
| Gender | 0.00159 | -0.05535** | 0.00970 | 0.01702 | 0.01199 | 0.04171 | 0.01271 | 0.20462*** |
| | (0.00481) | (0.02398) | (0.00658) | (0.04868) | (0.01308) | (0.06030) | (0.02018) | (0.05523) |
| CoB | -0.00259 | -0.02315** | -0.00699 | -0.03905** | -0.01196 | -0.04147** | -0.03344** | -0.09402*** |
| | (0.00320) | (0.01134) | (0.00721) | (0.01665) | (0.01024) | (0.01677) | (0.01695) | (0.03181) |
| EMP | -0.00000 | 0.00009 | 0.00001 | -0.00033 | 0.00002*** | -0.00045 | 0.00004** | -0.00104 |
| | (0.00000) | (0.00015) | (0.00001) | (0.00040) | (0.00001) | (0.00034) | (0.00002) | (0.00071) |
| IOb | 0.01502 | 0.00712 | 0.01864 | 0.02921 | 0.02572 | 0.04682 | 0.04540 | 0.04627 |
| | (0.00935) | (0.01830) | (0.02091) | (0.03060) | (0.02849) | (0.04293) | (0.04853) | (0.03107) |
| PerfM | -0.00375** | -0.00238 | -0.00650 | 0.00765 | -0.00272 | 0.01230 | -0.01063 | 0.00211 |
| | (0.00173) | (0.00635) | (0.00682) | (0.00798) | (0.00690) | (0.01189) | (0.00803) | (0.01424) |
| NMIndex | -0.00108 | 0.00575 | 0.01093** | 0.02588* | 0.01916*** | 0.02736 | 0.03638*** | 0.02591 |
| | (0.00220) | (0.01123) | (0.00469) | (0.01395) | (0.00609) | (0.02224) | (0.01024) | (0.02633) |
| Constant | -0.02660 | -0.05185 | -0.00242 | 0.01091 | 0.00966 | 0.02999 | -0.05033 | -0.00093 |
| | (0.01862) | (0.03933) | (0.03423) | (0.05640) | (0.04520) | (0.07002) | (0.07510) | (0.10073) |
| Observations | 263 | 263 | 263 | 263 | 263 | 263 | 263 | 263 |
| R-squared | 0.04048 | 0.10437 | 0.03754 | 0.21063 | 0.05786 | 0.22467 | 0.07002 | 0.36346 |
| Number of PERMNO | | 230 | | 230 | | 230 | | 230 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

**Appendix VI:** Example of different FE estimation for the all explanatory variables except CEO narcissism

| MODELS | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR1MM | (FE) CAR1MM | (OLS) CAR1MM | (FE) CAR1MM |
|---|---|---|---|---|---|---|
| Age | 0.00033 | 0.00034 | 0.00082 | 0.00018 | 0.00022 | 0.00098 |
| | (0.00061) | (0.00062) | (0.00069) | (0.00049) | (0.00047) | (0.00071) |
| Gender | -0.05952** | -0.05871* | -0.05622* | -0.01050 | -0.01601 | -0.04401** |
| | (0.02920) | (0.03030) | (0.02893) | (0.01963) | (0.01823) | (0.02122) |
| CoB | 0.01327 | 0.01076 | -0.00663 | -0.00730 | -0.00547 | -0.02074* |
| | (0.01466) | (0.01444) | (0.00708) | (0.01452) | (0.01392) | (0.01094) |
| EMP | -0.00005 | -0.00005 | 0.00003 | -0.00004 | -0.00003 | 0.00007 |
| | (0.00011) | (0.00011) | (0.00012) | (0.00010) | (0.00010) | (0.00014) |
| IOn | -0.00982 | -0.00848 | -0.00107 | | | |
| | (0.01940) | (0.01963) | (0.01850) | | | |
| RoS | -0.03084 | | | 0.02284 | | |
| | (0.01969) | | | (0.02533) | | |
| RoA | | -0.06987 | | | 0.07820* | |
| | | (0.04587) | | | (0.04054) | |
| RoE | | | -0.00636*** | | | -0.00637*** |
| | | | (0.00119) | | | (0.00207) |
| IOb | | | | 0.00984 | 0.00345 | 0.01422 |
| | | | | (0.01390) | (0.01323) | (0.01207) |
| Constant | -0.00833 | -0.00593 | -0.04135 | -0.01426 | -0.01531 | -0.06096 |
| | (0.03146) | (0.03082) | (0.03381) | (0.03004) | (0.02861) | (0.04028) |
| Observations | 277 | 277 | 249 | 317 | 317 | 285 |
| R-squared | 0.09231 | 0.08869 | 0.21765 | 0.04112 | 0.06611 | 0.16008 |
| Number of PERMNO | 243 | 243 | 221 | 272 | 272 | 250 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

# Abstract

Despite various efforts to ascertain a set of determinants shaping the market reactions to CEO announcements, no such set has emerged yet. Leading to this status quo are inconsistencies regarding the measurement of key variables as well as the methodology. In order to overcome this issue and to extend the existing set of factors, this Master's Thesis proposes CEO narcissism as an additional and pivotal variable in predicting cumulative abnormal returns around the announcement date. The sample is based on the CEO announcements of the companies of the S&P 500 index for the years between 2006 and 2016. Fixed effects estimation is applied and compared to ordinary least square estimation, which allows the observation of the net effect of CEO narcissism, pre-succession performance and successor origin on various cumulative abnormal returns. The results of a thorough statistical analysis endorse the significant and positive influence of CEO narcissism and the significant negative effect of pre-succession performance on stock market reactions under certain conditions, and the insignificance of successor origin. Moreover, the inclusion of interaction terms between CEO narcissism and control variables, such as firm size, indicates that under certain circumstance CEO narcissism decreases stock market reactions. Additionally, the comparison of a variety of event windows, encompassing between 1 and 21 days, indicates that the influence of a certain determinant depends on the event window observed. To assure the robustness of these findings, different methods to compute the cumulative abnormal returns as well as a multitude of control variables are used.

# Zusammenfassung

In den vergangenen Jahrzehnten versuchte eine Vielzahl von Wissenschaftlern die Faktoren, welche bei der Bekanntgabe eines neuen Geschäftsführers (CEO) auf den Aktienmarkt einwirken, zu bestimmen. Jedoch ohne einheitliches Ergebnis. Unstimmigkeiten in Bezug auf die Methodik und die Quantifizierung von Variablen bilden die Hauptgründe für das Bestehen von teilweise widersprüchlichen Ergebnissen. Diese Masterarbeit versucht durch die Miteinbeziehung von Narzissmus als zentrales Persönlichkeitsmerkmal von Geschäftsführern die Auswirkung bestimmter Faktoren, gemessen anhand von außergewöhnlichen Erträgen der Aktie des Unternehmens, auf den Aktienmarkt bei der Ankündigung eines Geschäftsführerwechsels näher zu bestimmen und bestehende Widersprüche zu erklären. Hierzu werden alle Geschäftsführerwechsel für die Unternehmen des S&P 500 zwischen 2006 und 2016 mit Hilfe von Paneldaten-Analysen untersucht, um die Signifikanz des Einflusses von Narzissmus, die bereits bestehende Zugehörigkeit des neuen Geschäftsführers zum Unternehmen und die Profitabilität des Unternehmens vor der Bekanntgabe des Geschäftsführerwechsels zu ermitteln. Die Resultate der statistischen Auswertungen zeigen klar, dass narzisstische Züge eines Geschäftsführers einen positiven Einfluss auf die Reaktion der Aktienmärkte hat, während der Einfluss der verbleibenden Faktoren nur unter bestimmten Bedingung, beziehungsweise überhaupt nicht, sichtbar ist. Darüber hinaus deckt die Verwendung von Interaktionstermen zwischen Narzissmus und verschiedenen Kontrollvariablen, wie Unternehmensgröße und –profitabilität, die unter bestimmten Bedingungen negativen Einflüsse von Narzissmus auf. Die Ergebnisse basieren auf der Verwendung von mehreren Zeiträumen zur Bestimmung und Berechnung der außergewöhnlichen Erträge, welche sich von 1 bis zu 21 Tagen erstrecken. Ein Methodenvergleich stärkt die Robustheit der Resultate und zeigt eine Korrelation zwischen Narzissmus und firmenspezifischen, zeitabhängigen Faktoren auf.